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SOFTWARE LINGUIST

When Lou Copfmann talks about his job as a senior software architect, he uses terms a linguist would approve. But it's no surprise, considering his background in French language and literature, which helps him "express things in different ways." Page 66



CLEAR THAT CUBE

Keeping all your PCs physically in the data center and giving users only a monitor, keyboard and mouse can offer some real advantages. A small company in Tucson has developed a way to do it. Page 66

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APRIL 16, 2001

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ONLINE

In the **Security Community**, West Coast bureau chief Pimm Fox checks in from the RSA Conference 2001 — www.computerworld.com/security — and offers his take on the first Kumo Inc. in Computerworld's **E-Commerce Community**. www.computerworld.com/ecommerce



A recent security breach at the IRS reveals that the most pressing issue Congress should tackle is security, not privacy, writes community member Daniel Burdon, who is also senior vice president of government affairs at Entrust Technologies Inc. www.computerworld.com/security

ing on in the server market.

- 28 **ALEX TORRALBAS** charges that politicians conveniently hide behind issues involving children when supporting the use of intrusive technologies.
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- 36 **PETER G.W. KEEN** writes that IT organizations must embrace PDAs and not repeat the mistake of being late to the PC party in the 1980s.
- 78 **FRANK HAYES** says that instead of resisting the installation of unauthorized beta software, you should start a program that will allow you to control it.

AT DEADLINE

Raytheon CIO Calling It Quits

Raytheon Co. CIO James Ingefer is leaving the defense contractor to pursue other opportunities, the company confirmed last week. Spokesman David Palk said Ingefer has told his staff that he would no longer be working at the Lexington, Mass.-based company. Palk added that he didn't know when Ingefer's last day would be and said he couldn't make any comments other than to confirm that Ingefer is leaving. Ingefer joined Raytheon as CIO in October 1987 after holding a similar position at Dallas-based technology retailer Compaq Inc. for three years.

Compaq, Dell Cancel Conferences

Citing the turbulent U.S. economy and a need to cut costs, Dell Computer Corp. and Compaq Computer Corp. are calling off their customer conferences this year. Dell has canceled its annual DirectConnect conference in Austin, Texas, and Compaq won't hold its biennial Innovate Forum in Houston, the companies said. Dell has held its DirectConnect conferences since 1998, and about 1,500 customers attended last year's event. Compaq's conference traditionally attracts about 4,000 people and has been held every other year since 1992.

AOL Plans to Change Privacy Claims in Ads

America Online Inc. has agreed to change the wording about privacy and security in some of its advertisements. The change came at the request of the National Advertising Division (NAD) at the Council of Better Business Bureaus Inc., a national advertising industry trade and regulatory group in Arlington, Va. The NAD requested that AOL make changes to its recent television ads, which last said "an AOL user privacy and security are always protected," said Andrew Lachin, director of the NAD. The NAD was concerned that the ads might lead consumers to believe that AOL could protect their privacy and security on the Internet at large, she said.

XP Beta Testers Face Incompatibility Issue

Need for fix revealed when unauthorized beta installations cause outages at Xerox

BY CAROL BLUMBA
AND TODD WEISS

THE RISKS of testing beta software hit home for Xerox Corp. when an incompatibility between a Cisco System Inc. switch and a beta version of Microsoft Corp.'s upcoming Windows XP operating system caused three network outages in a building at its El Segundo, Calif., facility.

A Xerox e-mail newsletter indicated that the outages happened between March 30 and April 4, after an unspecified number of employees installed a beta version of Windows XP in violation of the office equipment maker's corporate policy, according to company spokeswoman Kara Choquette.

Xerox prohibits unauthorized software use. Through the routine newsletter, the company reminded employees not to install unauthorized software on their computers.

Although the company addressed the problem by taking the Windows XP beta out of its systems, Choquette said the outage was "not an issue with Microsoft software, but with equipment from a third-party vendor" that she didn't name.

Ed Chapman, Cisco's director of enterprise product marketing, last week acknowledged that an incompatibility between its Catalyst 5000 switch and the XP beta had caused the problem, which has been resolved. Chapman said the problem related to "the way the switch and Windows XP interacted with each other" with regard to 802.1x security, a new feature in the second beta of Windows XP.

When 802.1x is enabled on Windows XP, control modules on any Catalyst 5000 switches older than two years may force 802.1x packets to all ports on the switch, potentially causing network congestion, a Cisco spokeswoman said. She

characterized the Catalyst 5000 as a "fairly widely deployed switch," although not as popular as the newer Catalyst 6000 line.

Chapman said Xerox has been the only company to report a problem. "There are no hardware issues," Chapman said, noting that the problem was related to software on the switch and that no new hardware is needed to correct it. (For fixes, see box.)

"We truly view this as a non-issue," Chapman said. "The is-

ssue was found in normal testing of the product, and I'm glad it was found prior to a major release of [Windows XP]."

Cisco, Microsoft and Xerox all worked together to solve the problem, according to a Microsoft spokesman. "Really, this is what the beta process is all about," he said. "This [kind of problem] crops up, and so we go to fix it."

The Microsoft spokesman said his company issued a temporary work-around for beta testers and is "evaluating whether there is a way to put something in the final product" to prevent the Catalyst 5000 problem.

"In a beta, you're always go-

Switching Gears

Doing one of the following will fix the incompatibility of the Windows XP beta with Cisco's Catalyst 5000 switch:

- **Downgrading a piece of software** from Cisco's Web site and installing it on the Catalyst 5000 switch.
- **Reconfiguring the software** in the Catalyst 5000 switch.
- **Doing a work-around** to alter the Windows XP configuration on PC workstations running the beta code.

ing to have these sorts of problems," said Michael Silver, an analyst at Gartner Inc. in Stamford, Conn. "People put it on machines, on production networks, and they don't realize it could cause problems like this."

The commercial version of Windows XP is due in ship in the second half of the year. ■

IRS Call Center Upgrade Aims To Boost Tax-Time Services

BY MARC L. SOWDEN

After years of ribbing about its less-than-friendly service, the Internal Revenue Service is making a major push to improve customer relations, just in time for this year's tax season rush.

The IRS, which received nearly 100 million phone calls last year, has recently completed a \$2 million upgrade of its call center applications, allowing it to handle almost twice as many simultaneous calls, said Ray Lefebvre, a program direc-

tor at the agency. The new system is a launching point for an integrated customer relationship management (CRM) phone, fax, e-mail and Web-based system that the IRS plans to phase in during the next several years.

The IRS probably has the most advanced system of any U.S. government agency, said Eusthan Kotsky, an analyst at Gartner Inc. in Stamford, Conn.

"The IRS realizes they have to have to respond to customers' needs," he said. "They're not the most dynamic organization in the world, and if they can do it, then [private companies] can do the same."

Technology is key in helping the IRS trim some of the \$125 billion it costs taxpayers to comply with the tax code, said Patrick Fleener, chief economist at the Tax Foundation, a Washington-based taxpayer advocacy group.

Since 1992, the IRS has operated 42 taxpayer call centers nationwide that can function as if they were connected under one roof. The system, which runs on software from Aspect Communications Corp. in San

Jose, identifies callers automatically and then routes them to appropriate agents depending on their level of need or other variables, said Lefebvre.

The agency last December completed an eight-month rollout of Windows NT-based Aspect Call Center 7.2 (an upgrade from Version 6.2) running on an Oracle Corp. database. Each call center can now handle about 1,500 calls at a time, up from 800.

"The IRS is also beta-testing an automated voice system based on applications from Boston-based SpeechWorks International Inc. and plans to go live with the system sometime this quarter."

However, Kotsky said, it may be a bit premature for the IRS to use voice technology for anything but simple functions. Tax questions can become very complicated, and users attempting to resolve problems may be frustrated by system limitations, he said.

Such self-service CRM installations are becoming more common in educational organizations and places like the U.S. Postal Service, said Elizabeth Herrell, an analyst at Giga Information Group Inc. in Cambridge, Mass.

"Government organizations are very aware they have to deliver better services but not spend more money," she said. ■

IRS Overhaul

The Challenge

➤ Nearly 100 million citizens contacted the IRS last year by telephone.

➤ The agency processed more than 215 million individual and business returns.

The Response

➤ The IRS upgraded 27 call centers that can handle 1,500 calls to agents or automated response systems simultaneously, up from 800 per call center.

Collaborative Peer-to-Peer Technology Finds Groove at GlaxoSmithKline, Raytheon

Others are still skeptical about product from Groove Networks, but pilots emerge

BY JENNIFER DESABATING

Despite the fact that many IT managers and pundits alike are skeptical about the usefulness of peer-to-peer technologies, a few companies such as GlaxoSmithKline PLC and Raytheon Corp. have recently decided to take the plunge.

Last week, Groove Networks Inc. in Beverly, Mass., released the first version of its collaborative peer-to-peer application, Groove 1.0.

Already, U.K.-based GlaxoSmithKline PLC has snapped up 10,000 seats for its worldwide employees. Meanwhile,

Raytheon Co. in Lexington, Mass., Abbott Laboratories in Abbott Park, Ill., and Symtek Technologies Inc. in Arlington, Va., have also signed agreements for limited deployments of the new collaborative tool.

"I think the needle is tilting toward the overtype cycle right now in terms of Groove," said John Pescatore, an analyst at Gartner Inc. in Stamford, Conn. However, Pescatore said that in the long run, he believes Groove will likely prove useful enough to business users to be profitable.

Groove uses a peer-to-peer

model to initiate and maintain workshops, where users exchange text with instant messenger (IM) software, applications and voice and video in real time through various passes within one frame or skin.

The data is stored on each user's hard drive. Off-line users can download updated information from ongoing Groove sessions when they log on.

Lingering Skepticism

One manager of messaging systems at a major U.S. bank with 65,000 users said he doubts that his company would deploy Groove.

"Where's the backup?" he asked. "I see that it's kind of a toy that people will use individually." He acknowledged, however, that that was how IM caught on at the company's Los Angeles office. Lotus Sametime IM software is now an indispensable tool at the bank, he said.

That same type of adoption may be the key to Groove's

success, if Raytheon's selection is any indication.

"We had several people sign up for the [free] preview copy, and they have indicated that this is a pretty cool technology," said Saul Fisher, director of strategic initiatives at Raytheon. "Right now, all we're doing is a pilot. We're testing the product to see if it meets the functionality claims it makes and if it meets the security requirements so we could use it potentially inside and outside [the firewall]."

GlaxoSmithKline is also testing Groove to see how it works in real, collaborative situations.

Like Fisher, Philip Connolly, head of IT communications at GlaxoSmithKline, is down to Groove's ability to link people in disparate geographical locations without having to get the IT department involved. "Too many of us are spending too much time on airplanes," Connolly said. He added that he hopes Groove will help reduce the company's travel expenses. "It seems to connect people to people, whereas Notes seems to connect people to documents," he said.

Both Raytheon and Glaxo-

SmithKline are fairly devout Notes shops. Connolly and Fisher agreed, however, that Groove has an edge over the collaborative Lotus products Sametime and QuickPlace when it comes to setting up quick workgroups.

"Groove has the potential to be easier to set up," Fisher said. "If it's that easy to use, kind of like IM, maybe it's something that we should consider." ■

The Cost of Being Groovy

• Enterprise licensing: \$40 per user

• Groove Enterprise Network Services: \$8 per user per month (volume pricing available).

• The Groove Preview Edition, a subset of the full Groove product, is free at www.groove.net

• Pricing for individual purchase of Groove software services will be announced later this year.

Groove Attempts to Position Itself As Corporate P2P Standard Bearer

Peer-to-peer is being touted as the hot new technology. Whereas Napster Inc. in Redwood City, Calif., has been something of a bastard child, Groove is setting itself up as the standard-bearer, particularly for corporate use. To be viable, however, it's adopting some IT mantras, like a data repository, to lure corporate users.

Network Services for Groove 1.0, for example, is designed to allow IT managers to centrally control the deployment and behavioral characteristics of widely dispersed Groove software, according to a press release issued with the launch of the software last week. Some of those central tasks include the deployment and management of client software and licenses, the dissemination of corporate and local security policies, the dissemination of user identities to be consistent with a corporate directory, the dissemination of software version upgrade policies and the aggregation of software usage, behavior and fault information.

Groove spokesman Richard Edel said the software is also working toward storing data on central servers. As a partner in Microsoft Corp.'s Net program, for example, Groove would access

line-of-business software. The changes users make while in a Groove session would then be stored on a central server.

In fact, little of the technology now being sold as peer-to-peer is exclusively run from desktop to desktop, which is the simplest peer-to-peer model, according to Scott Branson, chief executive officer. "There's only really one pure peer-to-peer," he said. "Napster has central directory, as does IM. Meanwhile, Gnutella, unlike Napster, works without a central directory."

"Today, the pain of using [peer-to-peer applications] outweighs the gain," Pescatore said. "It's not very efficient from a network point of view. It requires companies to think through architectural issues, putting technology in place for discovery capabilities, Groove's putting the things in place to do that sort of thing—reliable delivery, security, naming services [user authentication]."

"Right now, in my peer-to-peer to do that in small, ad hoc groups, you sort of have to be a rocket scientist," Pescatore said, adding that that's why many developers are building on a hybrid model like server-to-server.

—Jennifer Desabating

Cost Cutting May Spur IT Outsourcing Deals

Analysts: Economic downturn may cause firms to turn to outsiders to reduce costs

BY JULIANA BASH

The cooling economy may prompt firms to outsource more IT for cost-cutting reasons, according to analysts. But technology users, said the economy hasn't had much impact on their outsourcing decisions yet.

Though an outsourcing deal doesn't automatically guarantee cost savings, users will examine their IT budgets more closely and shift their priorities to put cost cutting among the top drivers for any technology decisions they make, said Lew Hollerbach, an analyst at Aberdeen Group Inc. in Boston.

According to a survey of 150 American and European companies released last month by The Conference Board Inc. in New York, cost cutting was the

top benefit of outsourcing, cited by 39% of respondents. Having access to experts came in second among respondents, with 38%.

"In boom times, outsourcing tends to be focused on time-to-market issues, and in down times focused on cost savings and restructuring," said Peter Bender-Samuel, CEO of The Outsourcing Center Corp., a Dallas-based consultancy.

But David Doney, director of information services at Blue Cross/Blue Shield of Michigan, said the economic downturn didn't influence his company's decision to sign a five-year, multimillion dollar deal last month with Compaq Computer Corp. Under the agreement, Compaq will provide IT services such as help desk and

desktop support, as well as asset management.

Doney said the Detroit-based insurer began looking for another vendor when Alpharetta, Ga.-based outsourcer Inacom Inc. filed for bankruptcy protection in June. But Doney expects the new deal to "contain costs and stay within budget," he said.

Companies that have already deployed the latest technologies may not find IT outsourcing to be a sound business decision. Gerry Geisler, senior vice president of Chubb Group of Insurance Co. in Warren, N.J., said that from time to time his company has discussions with third parties that offer expertise in areas where talent is scarce.

"If you have a mature IT operation and gotten good at it, you've developed superior levels [that are] tough to beat" by an outsourcer, he said. "We never really found anyone who could save us money." ■

Group Maps RosettaNet To Supply-Chain Process

Intel and Siemens lead the effort to align XML to SCOR model as industry standard

BY MARC L. BOWEN

INTEL CORP. and Siemens AG are spearheading a fledgling initiative to marry XML to a complex set of supply-chain business procedures to streamline e-commerce transactions.

The companies are taking RosettaNet, the electronics industry's XML-based language, and aligning it to the Supply Chain Operations Reference (SCOR) model, aiming to create reusable, intricate procedures based on standard supply-chain practices. They are currently working on a pilot project that will serve as proof-of-concept for the initiative, though no specific time frame has been established.

SCOR is the industry standard set of procedures defined by the Supply-Chain Council Inc. in Pittsburgh, which has 800 members, many of them large manufacturers, including Intel and Siemens. It offers best practices procedures for a

wide variety of supply-chain activities, including the planning, sourcing and delivery of goods, spanning from the supplier to the manufacturer to the end customer.

The council's board hopes the RosettaNet-to-SCOR initiative, if successful, will serve as a "frame of reference" that other industry groups, such as those serving the chemical or automotive industries, can use in the future, said Scott Stephens, the Supply-Chain Council's chief technology officer.

It's unclear how many council members have implemented SCOR procedures, but at least 100 have documented installations, said Stephens.

The initiative relies on tying specific SCOR procedures to RosettaNet Partner Interface Processes, which handle multiple data transactions among partners. Advocates claim that this will let RosettaNet handle new, sophisticated supply-chain processes and will result

in new collaboration capabilities. For instance, SCOR and RosettaNet could be aligned for things such as handling purchase orders or scheduling product deliveries, and they could take into account things as varied as different business methods and network protocol requirements.

The initiative targets RosettaNet because of its importance to Intel and Siemens, but the companies intend to broaden its purview later, said George Brown, a council board member and senior staff architect for worldwide IT at Intel in Chandler, Ariz. "The ap-

proach is independent.... We plan to map to [other XML standards] and are looking for a close alignment with eXML," a proposed specification for an electronic-business framework, he said.

Some in the Supply-Chain Council expressed reservations about whether mapping to SCOR will provide widespread benefit, however. Although the RosettaNet-to-SCOR initiative is a good start, the technology investment needed to support it may be too expensive for smaller companies, said Jo Vegheim, a managing director at the Supply-

Chain Council's Scandinavian chapter.

"RosettaNet is good for integration between large enterprises, but we have to keep in mind that there are companies out there that are not major enterprises," Vegheim said.

Ultimately, there may come a day when there will be dynamic, self-learning applications that can handle complexities and supply-chain exceptions, said Joseph Francis, a Supply-Chain Council board member and director for strategy and governance for supply-chain systems at Compaq Computer Corp.

While supportive of the RosettaNet-to-SCOR initiative, he said setting up standards processes, even for something relatively established like electronic data interchange, takes months with companies "mapping the bits and pieces" of the standards together. ■

Borders Turns to Amazon for Outsourcing

Renting online infrastructures is Plan B for struggling dot-coms

BY LEE COPELAND GLADWIN

After three years in the red, the second largest U.S. bookseller is calling it quits online, choosing instead to outsource its operations to Amazon.com Inc.

In turn, Seattle-based Amazon is adopting a well-established model for drumming up additional revenue used by other dot-com companies with infrastructure to spare.

For an undisclosed fee, Amazon.com will take over the Web operations of Borders Online Inc. and relaunch it as a co-branded site. It will be powered by Amazon's e-commerce platform and technology infrastructure. The online retailer will also handle inventory, customer service and shipping services for book, music and video sales. Ann Arbor, Mich.-based Borders Group Inc. will receive a commission on sales, officials at both firms said.

"It's only gravy for Amazon," said Carrie Johnson, an analyst at Forrester Research Inc. in Cambridge, Mass. "They're already in the book business, they've eliminated a competitor and they will possibly get new customers and some incremental revenue."

Amazon officials said the online merchant would also seek out additional opportunities to outsource its application infrastructure to other Web-based retailers, though no additional deals are in the works.

"Amazon is looking in all directions for ways to monetize what it already has," said Faye Landes, a financial analyst at Sanford C. Bernstein & Co. in New York. But because of its unique fit, the Borders deal is unlikely to serve as a blueprint for other deals, she said.

Irving, Calif.-based Autobytel.com Inc. has also resorted to renting its application infrastructure to rivals to drum up new revenue. General Motors Corp. will run a 90-day pilot to test a new online sales model starting May 1 on Autobytel's Web site (see story, page 17).

GM paid a one-time fee to run the pilot, but Thilo Koolowski, an automotive analyst at Gartner Inc. in Stamford, Conn., said the deal would never have been hatched if Autobytel didn't need a revenue boost. ■

Nasdaq Begins Trading Stocks in Decimals

BY MARIA TROMLEY

The Nasdaq stock exchange caught up to the rest of the securities industry — and the rest of the world — last week when it finally dropped fractions and switched to decimal stock pricing.

The transition went through without a hitch, said Scott Peterson, a spokesman for the Washington-based Nasdaq Stock Market Inc.

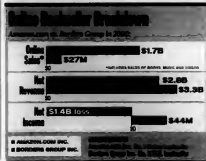
As expected, the spreads (the differences between the buy and sell prices) shrank, with those for the most active stocks declining the most. A typical spread fell by approximately 50%, Peterson said.

However, more time is needed before the exchange can accurately judge the change's effect on volatility and trading volumes, he noted.

The biggest fear — that options exchanges would suffer from higher trading volumes — also didn't come to pass.

"Decimalization went extremely well for us," said Dan Friel, CIO at the International Stock Exchange, a New York-based options exchange.

"Our systems were originally designed to handle everything in decimals," he added. "In fact, what added complexity was having to support decimals and fractions simultaneously." ■



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BRIEFS

Oracle Offers a Wireless Sneak Peek

Jacob Christoff, chief technology officer at OracleMobile Inc., provided a glimpse of Oracle WAS (Internet Application Server) Wireless Edition 2.0 in an interview last week. The release, which will be available by the end of this year, will merge Oracle Corp.'s wireless hosting services with its application server product, Christoff said, noting that the modeling was an acknowledgment that enterprises tend to want to off-load "mobile complexity" while maintaining their data and applications in-house. The new release will also support voice services, he said.

Educause to Manage Top-Level .edu Domain

A nonprofit organization that supports close integration of higher education and technology has been chosen to take over as manager of the Internet's top-level domain. Educause, a Washington-based group of 1,800 colleges and universities as well as hundreds of IT companies, is working out an agreement with the U.S. Department of Commerce's National Telecommunications and Information Administration to administer the .edu domain and its use by schools and colleges. Educause would handle registrations and administration of the .edu domain name registry, which is now handled by VeriSign Inc. in Mountain View, Calif.

Bush Proposes Flat Federal IT Budget

The Bush administration last week proposed a flat IT budget for federal agencies, with an increase of less than 1%, from \$44.4 billion to \$44.9 billion. According to Inspec, an IT market research firm in Cheshire, Vt., budget winners include the U.S. Department of Labor, with a 12% increase, and the U.S. Department of State and the Department of the Treasury, both of which are slated to receive 0% increases. Losers include NASA, down 4%; the Social Security Administration, down 5.5%; and the U.S. Department of Justice, with a 2% decrease. Congress could change these numbers.

New Tools Address Denial-of-Service Threat

Detection products provide early warnings but don't stop such attacks, say users

BY JAHNAR MUKTA

CONCERNS ABOUT denial-of-service attacks are resulting in a growing number of products and services aimed at helping companies detect, track and block the threat. But most of the technologies do little to prevent such attacks outright, users said.

Denial-of-service attacks basically make computer systems inaccessible by overloading servers or networks with useless traffic, which is claimed to help companies better deal with such attacks.

Mazda joins others, such as Waltham, Mass.-based Anta Networks Inc., North Brunswick, N.J.-based Nixus Inc. and Seattle-based Anta Networks Inc., all of which have announced services in this space during the past few months.

While each vendor claims to offer varying capabilities, the basic focus is on tackling denial-of-service attacks not just at corporate Web sites but also at the Internet service provider level, before denial-of-service traffic actually hits corporate Web servers, users said.

Such capabilities are crucial for companies at a time "when denial-of-service attacks are becoming more pernicious and are happening with increasing frequency," said Laura DiDio, an analyst at Giga Information Group Inc. in Cambridge, Mass.

But while these products may be technically good point solutions, the question that corporations need to ask is whether the products will scale enough to meet the requirements of the largest organizations, DiDio added.

Such products help by giving

administrators early notice of a developing attack. They also give administrators the ability to trace an attack back to its origins and filter out the offensive traffic much faster than current manual processes can, said Amer Moushahid, director of systems engineering at Epoch Networks Inc., a Costa Mesa, Calif.-based Internet service provider.

For instance, Mazda's monitoring devices that are distributed at multiple network points constantly analyze traffic, looking for network behavior that

indicates the onset of a denial-of-service attack, such as a sudden unexplained surge in traffic. Information gathered from all of the devices provides a broad picture of network traffic patterns that Mazda claims will help users detect an attack, identify its source and stop it as close to its origin as possible.

Arbor Networks collects comparable information and performs a similar analysis by setting up monitoring points both inside a corporate firewall and on the pipes leading into the corporate network from an Internet service provider.

Nixus adds a layer by offering an archival capability that lets customers perform forensic analysis on an attack, said Nik-

Stopping Denial

The anti-denial-of-service tools help administrators:

- By monitoring network traffic and looking for patterns that suggest a denial-of-service attack.
- By issuing alerts when abnormal traffic is detected.
- By providing a way to quickly trace the route back to the point of origin of an attack.

san President Parag Pruthi.

The idea behind such approaches is that when a "particular traffic pattern or hostile algorithm is detected, we are notified so we can make a decision whether to shut down our server or not," said Alex Golik, a vice president at Hamilton Scientific Ltd., a Roseland, N.J.-based application service provider for health care providers that's planning to use Nixus's technology on its networks. ■

3Com to Embed Firewall On Network Interface Cards

Technology targets in-house hackers

BY JAMES COPE

A new product introduced last week at the RSA Conference 2001 in San Francisco by 3Com Corp. and Secure Computing Corp. aims to halt, or at least deter, network mischief carried out by insiders.

San Jose-based Secure Computing has created a special version of its Sidevinder firewall technology that will reside on firmware on 3Com Ethernet network interface cards. These are the devices that plug into servers and client PCs and connect users to network servers through an Ethernet switch or hub.

The new network card will be called the 3Com Embedded Firewall and will be available from Santa Clara, Calif.-based 3Com in the third quarter, according to a joint announcement made by the companies.

At the same time, 3Com plans to market a special server that network managers can use to set security policies by

sending instructions over a network to firmware in the network cards, a company spokesman said.

The ability to set security policies on the firewall built into the network interface card is what makes the new 3Com product different from similar products that simply encrypt data, according to Steve Hunt, vice president of security research at Cambridge, Mass.-based Giga Information Group Inc.

Encryption just scrambles traffic sent across a network channel, Hunt said. The firewall technology in the new 3Com network interface cards enables network managers to push global policy settings to all such cards.

Policy Control

For example, a network manager can set policies that deter unauthorized network monitoring (sniffing) or the use of fake addresses for denial-of-service attacks (spoofing).

The technology would also let network managers specify policy by individual card, such as disallowing file transfer

protocol usage on a specific server.

Michael Stark, a senior systems consultant at FleetBoston Financial Corp. in Boston, said the idea of a firewall on a network interface card is new to him. "But it actually seems like a great concept," he added.

Stark said he's concerned, however, that the new card could slow down network throughput even though the 3Com device has an onboard processor.

Jerald Squires, security administrator at the Maryland Department of Transportation in Glen Burnie, Md., said a firewall on a network interface card might make it easier to protect and administer PCs used by remote workers.

Squires said that his agency currently has remote users whose PCs are protected by personal firewall software but that it's difficult to enforce a security policy on those PCs, because users can change firewall settings.

Although 3Com said the street price of a network card for a desktop PC would be a modest \$80, Hunt said that doesn't spell immediate adoption of the new technology. Most companies buy their PCs with the cards already installed and replace them only every three or four years, he noted. ■



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Retail Exchanges Push On Despite B2B Travails

The business-to-business sector has hit hard times, but the retail industry's two major competing exchanges are forging onward with big plans.

Key players for the for-profit GlobalNetXchange (GNX) and the nonprofit WorldWide Retail Exchange (WWRE) recently spoke with Computerworld senior editor Carol Silver about their progress and future direction, as both marketplaces marked their one-year anniversaries.

JEREMY HOLLOWES, GNX

Q: What drove GNX to its "megahub" model?

A: That is a joint company at the moment between Transara and GNX. The hub will sell its services to exchanges, which will resell to end-user companies.

Transara is effectively taking the development of GNX-net and migrating it into a business-to-business, multichannel hub — providing a single on-ramp which enables anyone to access exchange services or send transactions through a hub without using an [electronic data interchange value-added network].

We needed to provide connectivity to enable [companies] to access the exchange services and also to provide them with a single route — as opposed to having to maintain EDI VAN linkages and new XML linkages and so on. EDI is not going to go away, and companies don't want to have to say, "Well, I send my EDI messages this way, and I send my XML messages that way."

Q: How would you rate GNX's technology decisions?

A: Certainly good — I wouldn't say perfect... One of the negatives that people put against GNX early on was it was too closely tied to Oracle. I think what we said was, "We'll be tied to Oracle when it makes sense, and we won't be when it doesn't." ... I think, overall, that decision has turned out to be reasonably solid. We now have a reasonably good production operation.

Q: Can you comment on the equity members' level of activity to date?

A: All of the [equity members] are doing auctions, and many of them are doing other things as well. For example, Seimbury has taken the lead with CPFR [collaborative planning, forecasting and replenishment]. Sears is doing community development around the megahub. Carrefour has piloted the use of the megahub for EDI.

Q: How close are the eight GNX equity members to meeting their purchase volume commitment?

A: We're probably less than 5% of the way there. The volume commitment is about \$260 billion.

Q: Can you estimate where you think you'll be a year from now?

A: 25% to 50% — and a lot of that depends on the ramp-up in the hub and the use of those services and the continued development of the marketplace auctions.

Q: How close are you to achieving the GNX vision?

A: I don't think it ever ends. I don't think you ever get there because it's always changing. I think this year, we will see the primary functionality available in a production environment. Obviously, auctions are already well established. CPFR is now in pilot. Catalog functionality should be there during this year. The megahub is already available and will be fully production-available by the middle of the year. We will have some product development and

importation management capabilities.

What you will see is progressive uptake of those services this year, and so many ways, the big burn will probably come in 2002, because CPFR is hard work. It requires a lot of re-engineering of processes inside the business.

Q: Assess GNX's limits.

One of the CIOs at one of the members of GlobalNetXchange has said, "Well, will there be a time when I don't have any systems in my business?" Interesting thought. You then say, "Well, does GNX become an [application service provider] to some services? Does it work as an ASP? What is the model?"

What is very clear in my view is the possible evolution of a wall-to-wall [enterprise resource planning] model in retail will not happen... because the exchanges will fill half of that space. Maybe half is not quite the right percentage. But essentially, we're going to be moving to a much more modular development of the other tools that we need to run a business. And even that model might change over time.

Q: What are the biggest misconceptions about GNX?

A: First, that's Karrier and Sears. It's actually eight [equity] partners.... I think the other thing people misconstrue is the fact that we are a profit-oriented exchange. It's a for-profit model, and they have sometimes said, "Well, you see, what they're going to do is try and make more money out of that than they can out of retail." Hopefully the business will make a profit. But the way we are structuring it is about delivering value to businesses, and the for-profit is about the pragmatic — making good decisions quickly, moving forward, getting them implemented.

[Another misconception] is people still think it's a closed club. In fact, it's a very open exchange, and we have small and big retailers. ▶

GERARD VAN BREEN, WWRE

Q: Assess the progress of WWRE during its first year.

A: We announced [WWRE] on the 31st of March with a vision and nothing else. We knew there was software available.

We knew that there were parties interested to support it, build it, etc. But that was all we had.

We signed a letter of intent [for our technology] on July 20, and still, at that time, we didn't have anything. And then [we did] the first auction less than one month [later]. Since then, it has been moving continuously.

Q: In what areas will WWRE members see the greatest benefits?

A: I think ultimately the biggest advantage will come from the total workflow system of the whole procurement process — be it on promotion, distribution, pricing... and linking that together with your suppliers, of course.

CPFR [collaborative planning, forecasting and replenishment], I think, is going to be a major value contributor. We will have the first test in June, evaluate it in August, refine whatever needs to be refined, and I think before the end of the year, we can have a practical solution that is usable.

Q: Realistically, what do you think your company will be doing through the exchange next year?

A: I think we can do a major portion of our [requests for information, proposals and quotations] next year, completely electronic. I don't know exactly what portion of our global business that will be, but 10% of our transactions is not unlikely.

Q: How do you respond to critics who doubt the long-term viability of WWRE?

A: This is not magic. You have

to work. You have to think. You have to sit back and go through your processes. You have to convince people. You have to consider your current practices, your systems and everything. It's not easy work. It's not a piece of cake. But the more we do about it, the more excited we get about the potential that we see for using it.

Q: What role will electronic data interchange (EDI) play in WWRE?

A: I don't think the Worldwide Retail Exchange will completely move away from EDI. When

we have a business practice on EDI, we will most likely keep it and continue to do it. I think the XML applications will first be addressed to the smaller and medium-size suppliers that don't do EDI with us today.

Q: Will your hub provide a translation service?

A: The WWRE is going to do that.

We'll take care of the translation service between EDI and XML.

Q: What has been the greatest challenge so far?

A: It was really hard to develop our vision on what is just beyond the horizon. What we found was that a lot of people have ideas on it — technology providers, systems integrators, consultants. But what you really find is that when you get to these new areas of development, that nobody can really help you, that you're really on your own.

Q: How close is WWRE to meeting its original plan?

A: We had a time plan that was established on April 19 last year. We said that we would have a company by June 1, that we would have a CEO by Oct. 1, that we would have a company on its feet by Jan. 1. I think the only thing that we will not meet is that we had expectations that the company could break even by the end of this year. That is something that we will not make.

Q: Next year, perhaps?

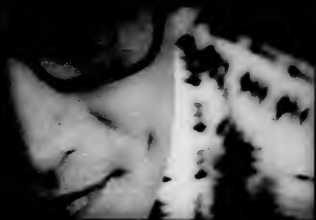
A: Yes, I think that should be possible. ▶



GERARD VAN BREEN, WWRE, a member who president of WorldWide Retail Exchange will launch the WWRE.



JEREMY HOLLOWES, GNX at Park-based retailer Carrefour SA, was instrumental to the formation of GNX.



BRIEFS

Database Problem
Snags Walmart.com

Wal-Mart Stores Inc.'s Internet presence was shuttled for approximately one hour last Wednesday because of database problems. A spokesman for Walmart.com Inc. in Bristow, Calif., said an unexpected database glitch caused the company's entire Web site to go down around 1 a.m. PDT on April 11. The problem was fixed by 2:50 a.m.

Fleet Hoists E-Billing

Boston-based FleetBoston Financial Corp. is deploying an online statement and electronic-billing application that will allow customers to access and manage their monthly bills at Fleet's online banking site. The application, which the bank is co-developing from Radtec, Mass.-based Edco Inc., will also enable Fleet to offer its corporate customers the ability to send customer statements and invoices and receive payments electronically.

More Pink Slips at
Consulting Firms

Missing the shutdown in IT spending, accounting and consulting firm Primavera/StoneCoopers last week said it's cutting 700 to 1,000 jobs from its U.S. consulting unit while Internet consulting firm Solent Corp. said it's cutting 675 jobs, or 32% of its workforce. Solent also warned of wider-than-expected losses for its fourth quarter and said it may cut an additional 175 jobs in the coming months. In December, Solent shut down 400 jobs in January. Primavera/StoneCoopers cut 400 jobs from its U.S. consulting unit.

Short Takes

Online delivery trailerer HOZOM INC. shut down its Web site, ceased delivery operations and said it would liquidate all assets. . . . INTEL CORP.'s new Random processor accelerated Intel's own benchmark for processing speed in an independent test by METWORKSHOP INC., an IT services firm in Montreal. . . . Alling Internet consulting firm IMAGIN FIRST INC.'s U.S. subsidiaries and affiliates filed for Chapter 11 bankruptcy protection.

Continued from page 1

Delta

to-be-launched online travel site Orbitz. Delta is one of the five partner airline owners of the site.

"We saw what they could do for Orbitz, in terms of finding low fares and handling all of this on-line demand, and we thought, 'Why not bring that in-house?'" Caminiti said. "The challenge of e-commerce is finding ways to improve the things you've always done to do them better."

Internet-based sales have created a particular problem inside the travel arena. While many dot-com businesses have failed, travel sites are booming as consumers purchase increasingly greater numbers of airline tickets and hotel rooms online.

Henry Harteveldt, a senior analyst at Forrester Research Inc. in Cambridge, Mass., estimates that online travel sales will rise 38% this year, from \$12.2 billion to \$16.7 billion.

"Yet the problem for the airlines is not the ticketing; it's the messaging hits for the prices," he said.

Third-party online distribution channels perform roughly 10 fare searches for every purchase they make, which puts tremendous stress on the airlines to push out real-time data and the lowest available prices.

David Beitel, vice president of product development at online travel agency Expedia Inc. in Bellevue, Wash., pointed out that archaic airline reservation systems weren't constructed with messaging in mind. He said no airline has yet figured out how to supply that information in 100% real time.

He noted that computer reservation systems like Worldspan LP and Sabre Inc. cache availability and often push that out to online channels.

"Then you get into how long can you trust that information that you cached," Beitel said.

In March, Dallas-based Southwest Airlines Co. and Fort Worth, Texas-based online travel agency Travelo-

city.com Inc. mutually agreed not to sell Southwest's tickets over that channel because the two parties couldn't come to an agreement on how to supply live availability information to Travelocity customers.

Last month, Fort Worth-based AMR Corp.'s American Airlines Inc. subsidiary reabsorbed 250 IT workers that had stayed with Sabre when American spun it off to help tackle this very problem.

"External demand is something we're very concerned about and very keen about," said American Airlines CIO Monte Ford. "We have to figure out where this demand is going and get there before it happens."

United Air Lines Inc., a subsidiary of Elk Grove Township, Ill.-based UAL Corp., is also trying to solve the problem.

Continued from page 1

Privacy

nagle called the lack of a federal privacy coordinator a "bad sign" for the Bush administration's approach to privacy.

The White House has decided not to appoint a "chief counselor for privacy," a position created by the Clinton administration. Instead, it will put responsibility for privacy issues in the hands of White House Office of Management and Budget (OMB) Director Mitchell Daniels and the yet-to-be-appointed deputy director, said White House spokesman Jimmy Orr. Those officials will work closely with whoever fills the expected position of federal CIO, he said.

Orr said the decision doesn't signal any diminishing of the importance that President Bush places on privacy. "What is important is that privacy issues will continue to be a top priority for the president, and OMB is going to be the location where privacy issues are dealt with," he said.

The growing complexity of privacy issues in government creates the need for some kind of coordinating position, ar-

"Every time a request comes across, it slows the system, and the number of requests are growing daily," said Scott Garner, managing director at United NetVentures, which coordinates United's e-commerce initiatives.

"It's a matter of constantly upgrading our traditional yield-management systems, which were created for an off-line world."

Jeremy Wertheimer, president and CEO of ITA, said retrofitting his software to operate in conjunction with an airline's legacy systems proved every bit as challenging as building a brand-new system for Orbitz.

"You have to get around organizational traditions," he said. "It wasn't so much any one requirement that caused a problem as the sheer number of requirements you have to meet."

Last year, former Delta CIO Charles Field called the Delta-museum reservation system "our heart and lungs." But Caminiti

Every time a request comes across, it slows the system, and the number of requests are growing daily.

SCOTT GARNER,
MANAGING DIRECTOR,
UNITED NETVENTURES

said the time is right to perform a transplant.

"Our customers want more information and better options," he said. "This is what we need to do to deliver it to them. You have to be willing to make deep changes in order to make e-commerce work for your company."

Leader Richard Arney (R-Texas), are insisting that government agencies fix their own privacy and security problems before passing legislation regulating the private sector. But Arney spokesman Richard Diamond said the push for reform doesn't necessarily mean a privacy chief is needed. "Having a privacy czar is one way to do it, but there may be other ways," Diamond said. "I don't think it matters what you choose, as long as the goal is met."

Different Routes,
Same Destination

How the Clinton and Bush administrations have dealt with privacy rights:

CLINTON: Appointed privacy chief to oversee privacy issues and regulations as they relate to federal agencies and the private sector.

BUSH: No privacy chief. Responsibilities will be handled by Office of Management and Budget director and deputy director.



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Continued from page 1

Storage

management and sizing. Included in the plan is the consolidation of more than 700 servers into a smaller number of systems.

Until it conducted an inventory of its storage capacity, the investment banking firm had no hard figures on how much storage capacity it had and how much of that was actually being used. Arbona said. The inventory found that only 52% of the capacity was in use, resulting in a large surplus that was being misapplied because IT managers weren't sure how much space was needed.

And things can become even more complicated once a SAN implementation gets under way.

Michael Butler, a vice president at Morgan Stanley Dean Witter & Co., said the New York-based brokerage faced initial challenges that included incompatible switches from multiple vendors, a lack of robust network management software and inadequate technical support.

"To solve these problems, we basically did it ourselves," Butler said.

Morgan Stanley, which began work on its SAN project 18 months ago, created an internal integration team as well as storage engineering groups at each office campus to perform trend analysis and capacity planning and install new storage technology without affecting the company's existing systems.

Butler said the company wanted to create a more reliable architecture for its 250TB of storage arrays that are connected through a subnetwork of traffic controlling devices such as hubs or switches.

GLOSSARY

What's a SAN?

• **A storage-area network (SAN)** is formed when at least two servers communicate with a number of storage arrays that are connected through a subnetwork of traffic controlling devices such as hubs or switches.

• **SANs** are most often connected by Fibre Channel, a gigabit transmission technology that supports various peripheral interfaces and communication protocols.

wanted to increase its storage utilization rates, which ranged from 30% to 50%. Data availability, disaster recovery and usage have been improved, he added, but there still are issues to be resolved.

Morgan Stanley's approach so far has been to install numerous separate SANs. For example, Butler said, the company has five SANs in the New York area. Each SAN fabric is duplicated and linked to its backup through fiber-optic rings with dense wave division multiplexing. The current set-up is a "tactical solution" that's reliable but not very scalable, he said.

Interoperability is also a key issue, said managers. Like other users at the conference, Eric Dryden, an information systems project manager at Houston-based Agip Petroleum Co., said he was pleasantly surprised to hear rival storage vendors at least talking about

working together to create interoperability standards that could make SAN implementation easier.

"In the outside world, when you talk to [a particular vendor], all you get is their product," Dryden said. As he browsed through the conference's interoperability lab, Dryden lamented his inability to find technology that could be used to consolidate Agip's tape backup systems.

One user said the best way to deal with interoperability is to avoid it altogether.

Gary Fox, a senior vice president and director of enterprise data storage at Charlotte, N.C.-based financial services company First Union Corp., advised attendees to steer clear of mixed vendor environments for the time being. Users should keep their storage network architectures as simple as possible by using homogeneous switches, he said. ■

Hesitant Users Take Long-Term View

In these tough economic times, it appears that the day when managers made storage technology purchase decisions based on factors like improved data backup speeds may be over. Companies are now focusing on total cost of ownership and the long-term return that storage investments can bring—and they're not spending quite as freely.

The trend was apparent when both EMC Corp. and Network Appliance Inc. announced that earnings for their most recent quarters would be below expectations. Joe Tucci, president and CEO of Hopkinton, Mass.-based EMC, said first-quarter earnings are now expected to come in at around \$364 million, about 10% lower than what financial analysts had previously estimated. He cited "some purchase hesitation from our customers" as the cause.

Network Appliance, a maker of

midmarket storage appliances in Sunnyvale, Calif., said its fourth-quarter revenue is expected to be 20% to 25% less than that of the previous quarter. The firm blamed "delays in customer orders."

Taking an economically prudent, long-term view toward storage spending was a recurring theme among the more than 2,000 attendees at last week's Storage Networking World Conference.

Jeff Kutik, a senior systems engineer at Best Buy Co. in Eden Prairie, Minn., said the electronics retailer in February installed a SAN that backs up 6TB of data daily. But, he added, the conference opened his eyes to the fact that the network was an investment, not just a technology purchase. "When I get back, we need to think about the future a little more," Kutik said.

—Lucas Meardon

Microsoft Launches Security Initiatives

New capabilities will appear in both Whistler and Windows XP, company says

BY JAHNURAH YLAVIAH

MICROSOFT Corp. is taking steps to make Windows a more secure operating environment.

The company last week announced plans to integrate new technology into upcoming versions of Windows that it claims will dramatically improve the security capabilities of the operating system.

But users will have to wait until Windows XP and the next version of the Windows Server product, which is code-named Whistler, start shipping before they see the technology.

Microsoft also announced a new internal program called the Secure Windows Initiative, which will provide Microsoft engineers with ongoing education, tools, security-focused development processes and rigorous internal and external testing to ensure more atten-

tion to security, according to the company.

On the technology front, Microsoft is integrating new software restriction policies into upcoming versions of Windows that will let systems administrators specify the applications that are allowed to run on Windows, while barring other applications, said Scott Culp, a manager at Microsoft.

For instance, an administrator could set policies that allow only applications such as Word and Excel to run.

The technology will look for specific markers, such as file size and other signed integrity credentials, before allowing applications. This will keep hackers from getting around the policies by overwriting approved applications with malicious code, Culp said.

Microsoft's efforts are a step in the right direction, said Russ Cooper, an analyst at TruSecure Corp., a security

firm in Reston, Va. But the success of the new features will depend on how easy Microsoft makes the implementation for administrators, he added.

"The problem with making things very granular is that it becomes difficult for people to figure out how to configure the system to make it both secure

and usable at the same time," said Cooper.

Some of the permission-based features that Microsoft is talking about have been available for years in the mainframe and Unix worlds, said Josh Turkel, MIS manager at Holyoke Mutual Insurance Co. in Salem, Mass. "It shows that Windows is evolving in the right direction," Turkel said. "But it has to have the right balance between simplicity and security [for features such as these] to work."

Microsoft is also adding a new security layer as part of the Common Language Runtime environment, which manages the execution of code on Microsoft's .Net framework.

The technology will let administrators define limits on the kinds of applications and services that can be accessed by another application.

For example, an administrator can define a policy that allows an application to access the contents of a specific database, while preventing it from accessing the contents of another database.

"We are going from correctness to fitness," Culp said. "The security update was the most coarse protection scheme. ... There are going to be additional levels of protection that you are going to see in Whistler and XP." ■

Security Upgrades

Microsoft is integrating the following features in upcoming versions of Windows:

• **Software restriction policies** that will let systems administrators specify the applications that are permitted to run on Windows while barring other applications.

• **A new security layer** as part of the Common Language Runtime environment that will let administrators define limits on the kinds of applications and services that can be accessed by another application.

Off-line Dealers Push For Legal Protection

Amid turf battle, some middlemen call for truce with online rivals

BY STACY COLLETT

TWENTY-EIGHT years in the automobile industry have taught Autobyte's Chick Ramsay a simple truth about the business: Don't try to circumvent the dealer network.

Ramsay is a senior vice president at Autobyte.com Inc., an online car-shopping service that's keenly aware that auto dealers jealously guard their turf from encroachment by e-commerce firms. For example, car dealers in nine states have already successfully lobbied to toughen state franchise laws, which make it difficult for manufacturers to bypass franchised dealers and sell cars directly to consumers.

So last year, when General Motors Corp. asked Irvine, Calif.-based Autobyte to test a new locate-to-order sales pro-

gram, "I foresaw difficulties," recalled Ramsay.

He knew he would need to get the dealers' blessings. So GM and Autobyte officials ran their ideas by the powerful National Automobile Dealers Association in McLean, Va., as well as 21 Chevrolet dealers in the Washington area that would be participating in the pilot program.

The plan was to let the dealers set online prices for the vehicles in return for letting GM and Autobyte list their Chevy inventory online.

The peace overture paid off. Ramsay said that, to his surprise, the meetings went relatively smoothly. The 90-day trial is set to begin May 1.

"[Vehicle dealers] are not about to give up their position in the marketplace. But they view the Internet as an opportunity, not a threat," said

Robert Maguire, chairman of the dealers' association.

Warily, online retailers and traditional dealers in the auto industry seem to be entering a cease-fire period, but the turf battles in other industries are still going strong. For more than a year, traditional music stores, wine and beer wholesalers, auctioneers, contact lens providers and even radiologists have filed suit or lobbied for legislation to restrict online businesses (see chart).

The traditional businesses say they're just trying to eliminate the unfair advantages of e-commerce. The online businesses counter that the intermediaries are fighting to bring onto outdated business models and laws, while thwarting consumer choice.

Middlemen cost Americans more than \$5 billion annually through markups, commissions and fees, according to the Progressive Policy Institute, a Washington-based think tank that favors a hands-off approach to Internet policy.

So far, the traditional businesses haven't actually won many legal battles against e-commerce.

"There aren't a lot of Internet-specific laws on the books" because legislators didn't want to trip up the booming Internet, said Jeremy Sharrard, a public policy analyst at Forrester Research Inc. in Cambridge, Mass. However, some industries, such as the auto dealers, have been successful in applying older laws to Internet companies, he added.

Some observers are warning brick-and-mortar companies not to jump on the anti-e-commerce bandwagon too quickly.

"Businessmen may have short-term gains but long-term problems [by pushing restrictive legislation]," said Rick Lane, a high-tech lobbyist at the U.S. Chamber of Commerce in Washington, which represents 3 million businesses. "Pretty soon, they'll all be online."

The travel industry has witnessed this evolution first-hand. Traditional travel agencies, once pitted against online



The power of the dealer network is stronger than ever.

CHICK RAMSAY, SENIOR VP, AUTOBYTE

travel sites, are now teaming with the likes of Fort Worth, Texas-based Travelocity.com Inc. and Bellevue, Wash.-based Expedia Inc.

"You have to be insane not to recognize that the Internet is where people want to go to transact business. We're not against it; we're trying to get our members to be more proficient and effective with it," said Paul Rudes, senior vice president of legal and industry affairs at the American Society of Travel Agents (ASTA) in Alexandria, Va.

New Travelocity, Expedia and traditional travel agencies are uniting against a new nemesis: the airlines. In March, St. Paul, Minn.-based North West Airlines Inc. and Netherlands-based KLM Royal Dutch Airlines announced they would stop paying commissions to Internet travel agencies in much the same way

they have curbed traditional agency commissions.

ASTA also has filed a complaint with the U.S. Department of Justice seeking to block the launch of Orbitz LLC, a Chicago-based online travel site developed by five major U.S. airlines. ASTA argues that the airline-owned site will unfairly gain market share by offering exclusive access to preferred fares. Orbitz attorney Gary Doernhoefer said the site will have lower fares because Orbitz will eliminate the hidden fees paid to Fort Worth, Texas-based Sabre Inc. and other reservations systems that travel agents use.

Doernhoefer said ASTA doesn't worry that travel agencies will be forced out of business. "When you're taking a two-week trip with a cruise in the middle, that's when you call a travel agent," he said. But for simple ticket sales, he added, travel agents are likely to be replaced by the Internet.

Meanwhile, protectionist tactics continue in other industries. Legislation introduced in Colorado would make it illegal for pharmacy benefits managers to offer discounts to residents who purchase drugs out of state by mail or online. In Virginia, a state optometrists association opposed a bill that would let residents renew drivers' licenses online. (The bill passed anyway.)

"The middlemen backlash is very quiet and very effective and shows no signs of abating," said Bob Atkinson, director of the technology and new economy project at the Progressive Policy Institute. Atkinson's report, "Revenge of the Disintermediated," which chronicles the off-line rush for protection, spurred the Federal Trade Commission to hold hearings in May on the state of Internet competition.

Ramsay said he hopes the pilot program involving Washington-area Chevy dealers will show all industries how traditional and online companies can work together. "A year ago, everyone said the Internet is the way to go and bye-bye dealers. I said, 'It ain't gonna happen.'" he said. "The power of the dealer network is stronger than ever, and we'll continue to work with the dealers." □

Collett is a freelance writer in Sterling, Va.

Internet battles to fend off

INDUSTRY	DEFENDER	ONLINE	ACTION
Auctions	Northern California Licensing Board	offering Inc. and other online auctions	Board wants participating sellers to be licensed by the state or face reimbursement charges and a \$2,000 fine.
Music	National Association of Recording Merchandisers (NARM)	CDnow Inc. (owned by Sony Music Entertainment Inc., a unit of Bertelsmann AG)	NARM sued Sony for unauthorized retail outlets by allowing direct online sales.
Contract Sales	Insurance Commission	1-800 Contacts Inc.	ICA pressured manufacturers to distribute only to licensed opticians.

Off-line Dealers Push For Legal Protection

Amid turf battle, some middlemen call for truce with online rivals

BY STACY COLLETT

TWENTY-EIGHT years in the automobile industry have taught Autobyte's Chick Ramsay a simple truth about the business: Don't try to circumvent the dealer network.

Ramsay is a senior vice president at Autobyte.com Inc., an online car-shopping service that's keenly aware that auto dealers jealously guard their turf from encroachment by e-commerce firms. For example, car dealers in nine states have already successfully lobbied to toughen state franchise laws, which make it difficult for manufacturers to bypass franchised dealers and sell cars directly to consumers.

So last year, when General Motors Corp. asked Irvine, Calif.-based Autobyte to test a new locate-to-order sales pro-

gram, "I foresaw difficulties," recalled Ramsay.

He knew he would need to get the dealers' blessings. So GM and Autobyte officials ran their idea by the powerful National Automobile Dealers Association in McLean, Va., as well as 22 Chevrolet dealers in the Washington area that would be participating in the pilot program.

The plan was to let the dealers set online prices for the vehicles in return for letting GM and Autobyte list their Chevy inventory online.

The peace overture paid off. Ramsay said that, to his surprise, the meetings went relatively smoothly. The 90-day trial is set to begin May 1.

"[Vehicle dealers] are not about to give up their position in the marketplace. But they view the Internet as an opportunity, not a threat," said

Robert Maguire, chairman of the dealers' association.

Warily, online retailers and traditional dealers in the auto industry seem to be entering a cease-fire period, but the turf battles in other industries are still going strong. For more than a year, traditional music stores, wine and beer wholesalers, auctioneers, contact lens providers and even radiologists have filed suit or lobbied for legislation to restrict online businesses (see chart).

The traditional businesses say they're just trying to eliminate the unfair advantages of e-commerce. The online businesses counter that the intermediaries are fighting to hang onto outdated business models and laws, while thwarting consumer choice.

Middlemen cost Americans more than \$15 billion annually through markups, commissions and fees, according to the Progressive Policy Institute, a Washington-based think tank that favors a hands-off approach to Internet policy.

So far, the traditional businesses haven't actually won many legal battles against e-commerce.

"There aren't a lot of Internet-specific laws on the books" because legislators didn't want to trip up the booming Internet, said Jeremy Sharrard, a public policy analyst at Forrester Research Inc. in Cambridge, Mass. However, some industries, such as the auto dealers, have been successful in applying older laws to Internet companies, he added.

Some observers are warning brick-and-mortar companies not to jump on the anti-e-commerce bandwagon too quickly.

"Businesses may have short-term gain but long-term problems [by pushing restrictive legislation]," said Rick Lane, a high-tech lobbyist at the U.S. Chamber of Commerce in Washington, which represents 3 million businesses. "Pretty soon, they'll all be online."

The travel industry has witnessed this evolution first-hand. Traditional travel agencies, once pitted against online



The power of the dealer network is stronger than ever.

CHICK RAMSAY, SENIOR VP, AUTOBYTE

travel sites, are now teaming with the likes of Fort Worth, Texas-based Travelocity.com Inc. and Bellevue, Wash.-based Expedia Inc.

"You have to be insane not to recognize that the Internet is where people want to go to transact business. We're not against it; we're trying to get our members to be more proficient and effective with it," said Paul Ruden, senior vice president of legal and industry affairs at the American Society of Travel Agents (ASTA) in Alexandria, Va.

New Travelocity, Expedia and traditional travel agencies are uniting against a new nemesis: the airlines. In March, St. Paul, Minn.-based Northwest Airlines Inc. and Netherlands-based KLM Royal Dutch Airlines announced they would stop paying commissions to Internet travel agencies in much the same way

they have curbed traditional agency commissions.

ASTA also has filed a complaint with the U.S. Department of Justice seeking to block the launch of Orbitz LLC, a Chicago-based online travel site developed by five major U.S. airlines. ASTA argues that the airline-owned site will unfairly gain market share by offering exclusive access to preferred fares. Orbitz attorney Gary Doernhoefer said the site will have lower fares because Orbitz will eliminate the hidden fees paid to Fort Worth, Texas-based Sabre Inc. and other reservations systems that travel agents use.

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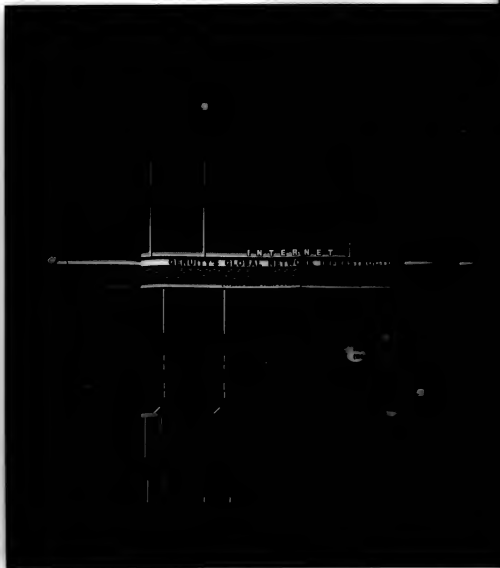
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Collett is a freelance writer in Sterling, Va.

Revenge of the Middlemen

Traditional companies are using protectionist tactics to fend off online rivals.

INDUSTRY	DEFENDER	DOT.COM	ACTION
Auction	North Carolina Auctioneer Licensing Board	eBay Inc. and other online auctions	Banned various participating sellers to be licensed by the state or face misdemeanor charges and a \$2,000 fine.
Wine and beer sales	Wine Wholesalers Association, National Beer Wholesalers Association	Wine.com and other online wine sales that sell directly via the Internet	Congress passed a law that makes it illegal for out-of-state wineries to ship directly to consumers in the 30 states that allow Internet wine sales.
Music	National Association of Recording Merchandisers (NARM)	CDnow Inc. (owned by Sony Music Entertainment Inc., a unit of Bertelsmann AG)	NARM sued Sony for undermining retail outlets by allowing direct online sales.
Contact lenses	American Optometric Association (AOA)	1-800 Contacts Inc.	AOA persuaded manufacturers to distribute only to licensed optometrists, not online retailers. (So that means most buy from wholesalers, not manufacturers.)



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But if you checked out the schematic to the left, you already know that.

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environment with 24/7 technical support and proactive monitoring in Genuity's state-of-the-art Network Operations Center. All backed by a comprehensive Service Level Agreement assuring uptime.

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Is Server Consolidation the Answer?

Senior executives are demanding information systems that position the company for e-business growth. Users are demanding service levels, reliability and response times that meet e-business requirements.

But there's a problem. "The far-flung servers that have sprung up across the enterprise, often for point applications such as e-mail, can't support expected growth or user demand," says Neil Ross, Program Director, Unisys Consolidation Solutions. "Supporting all the servers is getting expensive while consuming increasingly scarce IT personnel."

For a growing number of organizations, the answer is server consolidation. The benefits of a well-crafted consolidation strategy are many, including:

- Delivery of consistently higher service levels
- Positioning for IT growth
- Simpler, more efficient system administration
- More efficient use of IT labor
- Lower total cost of ownership

Consolidation is a multifaceted thing. It can involve consolidation of common processes and management. It can involve placing all servers in one room for more efficient administration. Or it can involve replacing several small servers with larger ones, like the Unisys ES7000. In all cases, the best solutions are servers-oriented.

Get more information on server consolidation at our special interactive Webcast on May 4, 2001 at 10 a.m. EST. To register, visit www.unisys.com/e-biz/webcasts.

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FTP Flaw Makes Servers Insecure

Unix shell commands could enable remote intrusions

BY TODD R. WEISS

SECURITY ANALYSTS HAVE ISSUED warnings about a software flaw that they said could allow intruders to gain unauthorized access to remote file transfer protocol (FTP) servers.

In an advisory issued last week, Network Associates Inc.'s PGP Security division said the problem is related to the "globbing" command used in Unix shells. The command essentially acts as a path name generator, allowing users to search for multiple file names by entering shorthand commands that are then used by the software to search for common patterns.

Santa Clara, Calif.-based PGP said its Computer Vulnerability Emergency Response Team found a flaw that allows the pattern expansion done through the glob function to instead be directed to cause various buffer overflows in FTP servers—a capability that could enable malicious attackers to gain root-level privileges.

The problem is said to usually affect only FTP servers that give remote users the ability to create directories on the system hosting the FTP daemon. That will likely restrict the vulnerability's threat, said Greg Shipley, security services director at consulting firm Neohapsis Inc. in Chicago.

"In addition to the threat of data loss or attacks against private networks, many Web server administrators rely on FTP to post content to their Web servers," said Jim Magdyk, manager of the emergency response team at PGP. "These vulnerabilities could offer an

easy avenue of approach for an attacker intent on defacing Web sites."

The CERT Coordination Center at Carnegie Mellon University in Pittsburgh also posted a notice on its Web site about the FTP flaw. The buffer management flaw could let intruders execute arbitrary code on an FTP server and "may be confused with a related denial-of-service problem," CERT said.

PGP said that until patches are available, remote intrusions can be prevented by ensuring that no directories exist that can be written to by an anonymous

Open-Source Web Site Shuts Down

Collaboration wasn't enough, says CollabNet

BY TODD R. WEISS

After spending 20 months trying to use the Internet to bring together corporate IT workers and open-source software developers to collaborate on technology projects, CollabNet Inc. has shut down its SourceXchange online marketplace because of a lack of revenue.

CollabNet co-founder Brian Behlendorf said in a statement posted on the company's Web site that SourceXchange closed April 6. "While a unique idea, and one that we feel really adhered more closely to the open-source ideal than any other work-for-hire site ever did, it simply did not

achieve the volume of business necessary to maintain the site and evolve the offering to meet the needs of sponsors and developers," said Behlendorf, who helped create the Apache Web servers.

SourceXchange was one of several new Internet-based marketplaces that let companies post proposals for open-source software projects and seek bids from programmers. San Francisco-based CollabNet launched the site in 1999 and then raised \$35 million in funding last June from a group of nine technology vendors, including Hewlett-Packard Co., Intel Corp., Oracle Corp. and Sun Microsystems Inc.

But a CollabNet spokeswoman last week said the company began shifting its focus away from SourceXchange last fall in order to give full attention to a collaborative software package called SourceCast, which was used to run the online marketplace.

The big problem was that many companies preferred to seek application development help from known entities with whom they had already established working relationships, said Bernie Mills, vice president of marketing at CollabNet. "The model they wanted to use was the model of a trusted contractor," rather than canvassing an online collaborative site such as SourceXchange, Mills said.

Tracy Corbo, an analyst at Hurwitz Group Inc. in Framingham, Mass., said she was surprised by the site's closure, since the software economy makes it more likely that companies will seek outside project help instead of hiring new workers. "Maybe it was a case of being too early to market," she said. ▀

Du Pont IT Exec Quits to Be CEO

BY TODD R. WEISS

Du Pont Co. lost its chief IT person last week when Cinda Hallman announced that she was moving to the head of the executive table—at another company.

Hallman, 56, will join Fort Lauderdale, Fla.-based Spherion Corp. as its CEO and president. Spherion is a staffing, recruiting and IT consulting company.

Hallman resigned as senior vice president of global systems and processes

at Wilmington, Del.-based Du Pont, where she was responsible for the company's global IT systems and strategy. Her 35 years of IT experience includes time spent at Houston-based Conoco Inc., which was formerly a subsidiary of Du Pont.

At Du Pont, Hallman was credited with saving the company more than \$50 million in expenses as CIO before being appointed as global vice president of integrated processes and systems four years ago. She was later promoted to senior vice president. ▀



HALLMAN
Served Du Pont \$50 million in expenses as CIO



FTP user. BSD and Irix users should also be sure that none of their FTP directories have names with more than eight characters, the company said. However, PGP noted, neither of those precautions will stop local users. ▀

Margaret Johnston and James Niccolai of the IDG News Service contributed to this report.

They say, in e-business, it takes forever to unify the past with the future.



Some e-business consultants will tell you trying to integrate your legacy systems takes too long and costs too much. They would have you scrap what exists and commit to whatever vision of the future they're selling that day. Unisys people can unify what you have with what you're going to need, using our decades of experience, ingenuity, and plain old hard work. And we do it every day, in over 100 countries. Today is the day to start unifying your past with the future. With Unisys people there to help, it won't take forever. Visit our website at www.ahheadforebusiness.com.

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Microsoft Pulls Bluetooth Support From Windows XP Operating System

Pocket PC division will roll out technology slowly

BY BOB BREWIN

The desktop division of Microsoft Corp. has temporarily pulled support for Bluetooth short-range wireless devices from the next version of its Windows operating system, citing a lack of hardware to test on and a long rollout schedule. However, the company's Pocket PC division continues to embrace the technology.

Analysts said Microsoft's decision reflects the realities of Bluetooth, which was hyped last year as the next big thing but began slipping in quantity only this year.

Bluetooth uses low-power wireless technology operating in the 2.4-GHz band to connect personal digital assistants such as Palm Inc. devices and Pocket PCs to cellular phones and as a replacement for printer cables in desktop computers.

"There is just not sufficient quantities of production quality hardware yet," a Microsoft spokesman said.

He said this doesn't

mean that Microsoft, one of the leaders of the industry consortium developing Bluetooth, has given up on the technology. The company will consider adding support for Bluetooth as production of the devices ramps up. Third-party software developers will also produce drivers to let Bluetooth devices into Windows XP, the spokesman added.

A manager in Microsoft's Pocket PC division said he believes Bluetooth can provide real utility for mobile users as a cable replacement but that Bluetooth isn't quite ready for prime time.

"Bluetooth is real, but I don't think [the rollout] will be smooth sailing," said Douglas Dedo, group product manager at Microsoft's mobile devices division. Dedo said he doesn't expect to see widespread proliferation of Bluetooth devices until next year.

AT A GLANCE Teething Pains

■ Microsoft's desktop division has dropped support for Bluetooth in Windows XP.

■ Availability of third-party drivers will mitigate lack of support for Bluetooth in XP.

■ The Pocket PC division views Bluetooth as "real" but doesn't expect widespread use until next year.

Craig Mathias, an analyst at Forrester Group in Ashland, Mass., said Microsoft's decision not to support Bluetooth in XP reflects the realities of the marketplace. "There's lack of standardization and products," he said. "I don't see widespread Bluetooth use for another two years." ■



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GlaxoSmithKline Joins Others in Opting for Notes

BY JENNIFER DISABATINO

Following similar announcements from newly merged companies, including Exxon Mobil Corp., GlaxoSmithKline PLC (GSK) has decided to standardize its e-mail and collaboration system on Lotus Development Corp.'s Domino and Notes.

The London-based pharmaceutical company informed its employees of the migration to Notes in a memo.

[The corporate executive team] has endorsed IT's recommendation that the best way to achieve a single e-mail system for GSK that also encourages collaborative working is to adopt Lotus Notes. This decision also recognizes the substantial number of GSK [research and development] databases that already exist in Notes and are

essential to ongoing drug discovery and development programs," the memo stated.

GlaxoSmithKline spokesman Phillip Connolly said the company's heavy investment in Notes was a primary factor in the decision.

The decision to standardize came in February, two months after the formal merger of Philadelphia-based Smith-Kline Beecham Corp. and London-based Glaxo Wellcome Inc.

The company has more than 100,000 employees worldwide. While Smith-Kline Beecham has substantially migrated to Notes, there are still a few other e-mail clients in use at Glaxo Wellcome.

"The possibility of consolidating with some sort of hybrid between Microsoft Outlook and Notes was considered but discarded as impracticable," the memo said. "Instead, Lotus Notes Release 5 will be implemented throughout GSK, and Notes Version 4 [currently the predominant e-mail system at Smith-Kline Beecham, CC-Mail and Outlook will be retired. The implementation team is being set up and hopes to complete the initial planning phase by July 2001." ■

*Open to legal residents of the United States who are at least 18 years of age at the time of the contest and who are not employees of RH Consulting. Contest ends May 27th, 2001. Odds of winning are 1 in 600. Winner will be selected by random drawing. RH Consulting is not responsible for any prizes not claimed. © 2001 RH Consulting LLC.

CRM Market Appears Headed for Shakeout

Analysts: Mergers, acquisitions to accelerate

BY MARC L. BONADIO

LAST WEEK'S MERGER of ailing Kana Communications Inc. with Broadbase Software Inc. may be just the latest sign of an accelerating shakeout in the customer relationship management (CRM) market, according to analysts.

The softening economy and the proliferation of smaller players has made the field ripe for consolidation or downsizing, say analysts. As a result, users of software from Redwood City, Calif.-based Kana and Menlo Park, Calif.-based Broadbase, as well as the dozen other CRM companies that have recently merged, may be left to face discommoding product lines and confusion.

For those who are concerned, there are steps that can be taken, said Steve Bonadio, an analyst at Meta Group Inc. in Stamford, Conn. A company should demand a contingency contract from a CRM vendor stipulating that in the case of a merger or bankruptcy, the user can get access to the application source code for future modification, he said.

Not all users are worried, however. The Kana/Broadbase merger just means business as usual, said Stacy Maclean, a spokeswoman for San Francisco-based clothing retailer The Gap Inc.

"We have no concerns and have plans to continue our relationship with Kana," she said.

Some users might even benefit as a result of their vendors expanding and integrating their product lines.

"By combining the data and capabilities into one enterprise-wide system, Chordiant is providing us with a more effective tool to manage our resources [and] retain and better serve our customers," said Steve North, head of strategy and architecture at Edinburgh-based The Royal Bank of Scotland Group PLC, a user of software

from Chordiant Software Inc. Cupertino, Calif.-based Chordiant recently acquired Boston-based PrimeResponse Inc. Kana claims that the merger with Broadbase will result in a more rounded product line, with Kana's communications management functions and Broadbase's analytical tools.

Despite the lofty rhetoric, the deal seems like a defensive move, said analysts. Kana last month laid off 20% of its workforce, and when the merger was announced, both Kana's and Broadbase's stocks were

JUST THE FACTS

CRM Market Consolidation

Some recent activities in the CRM market include the following:

- Broadbase Software acquired ServiceSoft Technologies Inc.
- Kana Communications merged with Broadbase.
- Chordiant Software acquired PrimeResponse.
- FirstPond Inc. acquired Brightware Inc.
- Siebel Systems Inc. acquired Janna Systems Inc.

trading for approximately \$1.

"This merger was a total balance sheet and customer acquisition play that does little to strengthen Broadbase's previously focused strategy," said Bill Chambers, principal analyst at DocuSign Inc., a research firm in Chicago.

Despite the turbulent market, CRM remains a high priority for many firms, according to recent findings by Intellect Group Inc., an analyst firm in Gaithersburg, Md. A survey of 137 companies indicated that 88% are using or thinking of using CRM systems.

But consolidation appears inevitable for most small and midsize CRM players, said Joanne Rufo, a research director at AMR Research Inc. in Boston. "Of the nearly 500 CRM vendors in the market today, by the middle of this decade, only 15% will still be recognized as viable CRM providers," she said. ■

BRIEFS

Former FedEx CIO Joins Commerce One

Business-to-business software vendor Commerce One Inc., which started earlier this month about week financial results for the first quarter, has named Dennis Jones, former CIO at Memphis-based FedEx Corp., as its chief operating officer and vice chairman. Jones will be responsible for engineering, marketing, financial, legal and administrative operations at the Pleasanton, Calif.-based company.

More Movement At Critical Path

Another reorganization at e-mail outsourcing Critical Path Inc. last week resulted in the layoff of 450 employees, including the president and six other executives. In February, San Francisco-based Critical Path retained its earnings for the previous quarter as a result of an investigation that detected some revenue problems.

Microsoft Expands On Unit Shifts ...

Microsoft Corp. has this time privately announced internal organizational changes aimed at advancing its move toward software services. Vice President Yusuf Bhatti will lead the newly expanded MSN & Personal Services Business Group, responsible for network programming, business development, and sales and marketing for Microsoft's software services. Group Vice President Bob Maglio's Net Services Group has been renamed the Personal Services Group and has been expanded to include a Personal Chat team to develop premium subscription services.

... And Finalizes Great Plains Buy

Microsoft has completed its acquisition of Fargo, N.D.-based Great Plains Software Inc. for approximately \$1.1 billion in stock. Great Plains, which makes business applications for small and midsize companies, will become a division operating within Microsoft's Productivity and Business Services Group.

Cingular CEO Carter Takes on 3G Wireless

Says location-based services are among carriers' challenges

At the Roam wireless technology conference in Tucson, Ariz., last week, Stephen Carter, CEO of Atlanta-based Cingular Wireless, discussed with Computerworld's Don Tennant some of the issues wireless carriers are facing and what they mean for IT in the enterprise world.

Q: Is there a business case for third-generation (3G) wireless services in the enterprise? What can't we do now that we need 3G to help us do?

A: It will make the road warrior's life a lot easier, since the device will dial straight through into your intranet. You'll be able to utilize a much wider array of applications, like downloading slides for presentations.

Q: I can do that on my laptop in the hotel. Why do I need to do it with my wireless device?

A: Why do you need a wireless phone, when you could go to a pay phone? It's convenience. It

gives you control over when and how you do it. You know the speed; you know how much it's going to cost you.

In hotels and other public places, you're not really assured of knowing that you can do it at a certain time. And the enterprise will see benefits from being able to create applications that are specific to the enterprise rather than using generic models—the ability to tailor and customize.

Q: The Federal Communications Commission has set an October deadline for carriers to support location-based services, which would enable authorities to pinpoint the location of 911 callers. Will Cingular be ready?

A: We're still working on exactly what is the best way to try to approach this. There are several competing technologies, none of which seems to really meet the FCC's specific distance and accuracy requirements at this point. The handset manufacturers have definitely got a challenge to meet the requirements, and the carriers have a challenge with the

infrastructure. So we're still wrestling with this at the moment.

Q: Do you have the spectrum you need to support 3G?

A: Neither we nor anybody else has enough to do 3G to the European standard.

The Big Six carriers in the U.S. — we all have an average of somewhere between 35 MHz and 38 MHz. If you look at Europe, the big carriers have about 90 MHz. Japan is about the same. So I don't believe that the U.S. has enough spectrum.

Q: What's the optimum solution to that problem?

A: I'm not convinced that you need six huge carriers to get a good, competitive market going. But truthfully, there needs to be more spectrum available. So that means you have to cut out some blocks that are usable and, ideally, compatible with a world standard so you don't end up having stuff made just for the U.S. I wouldn't argue that it should be free, but it should be certain. ■

PATRICIA KEEFE

Regulate Privacy

PHONE NUMBER? ZIP CODE? Social Security number? You can't make a purchase or fill out a form these days without being asked such intrusive questions. Then there's the blackmail practiced by retailers that forces you to choose between paying too much or surrendering your shopping

habits to a swipe card. Or pick up a prescription and get automatically funneled into "informational" campaigns from drug makers.

No wonder Capitol Hill is crawling with privacy bills. But those efforts won't amount to much if folks like House Majority Leader Dick Armey (R-Texas) and his sidekick, Rep. W.J. "Billy" Tauzin, (R-La.), chairman of the House Committee on Energy and Commerce, have their way. Both men are using lax government agency follow-through on privacy as an excuse to shield businesses, which they claim can be trusted to safeguard privacy rights without regulations.

Who are these trusted companies? Ebay and Amazon? They recently changed their privacy policies to exempt themselves in the event of a buyout or bankruptcy (in which case, they'd like to treat your privacy as a salable asset). Or maybe it's the members of the Online Privacy Alliance — AOL, Microsoft, IBM and Sun, among others — which are said to be quietly lobbying to kill or weaken privacy legislation that's now under debate. (See, Judge Jackson, they can set aside their differences and come together when the cause is great enough!) Or perhaps it's our financial institutions, which



PATRICIA KEEFE is Computerworld's editorial director. Contact her at patricia.keefe@computerworld.com.

have been given obscene license to share our personal data within and outside their umbrella companies. Many are already violating the spirit of the law that requires them to notify consumers of their remaining privacy rights.

And don't forget the 751 U.S. and international sites surveyed by London-based Consumers International, which found that while most collect personal data, they don't tell consumers how it will be used or secured or what rights they have.

Clearly, the fox is in the henhouse.

If customer relationships are really what will drive businesses for the next decade, then companies need to stop fighting privacy legislation. The idea that "better education and disclosure" alone will make customers "feel more comfortable" is dishonest. Knowing what happens to your data isn't the same as a buy-in, and that's the real issue here. Comfort will come from the ability to protect and control the collection and distribution of that data without suffering penalties. Businesses that really want to build e-relationships need to get behind a win-win privacy solution that works for all parties. That's where the relationship rubber really meets the road. ■

PIMM FOX

Wall Street Woes Can Hit Corporate IT Where It Hurts

PANIC NOW AND avoid the rush. No, this isn't IT policy, but it sums up Wall Street. Just when investors believed stocks could go no lower, they found deeper ground to plow. Sure, some politicians and economists make the case that Wall Street isn't connected to Main Street, but they obviously don't work at publicly traded firms.

There are work-related reasons for IT professionals to watch the stock market.

First, they buy from vendors whose stocks are getting hammered. Top-notch technology is no guarantee of success. What counts are profits. If you're doing business with a firm that doesn't

have any profits, ask why it doesn't. A couple of losing quarters in this market could spell disaster. Consider that PSINet, an Internet access provider, warned that it would likely face bankruptcy. If you think this isn't going to affect you, think again. The ripples from a tech meltdown will hurt everyone.

Winstar Communications, which has borrowed \$600 million from Lucent, is on the ropes. Winstar can't pay its bills and is considering bankruptcy protection. This could further damage Lucent, which has denied rumors that it also would seek bankruptcy protection.

As a technology buyer, you must perform due diligence on the companies you deal with. Tell them it's not personal — just good business.

A second type of due diligence applies directly to vendors' research and development. For much of the past five years, the bull market has given tech companies the opportunity to use their own stock to acquire new, emerging companies, supplementing their own R&D efforts.

Back in the good old days of 1999, Cisco Systems paid \$6.9 billion in stock for Cerant Corp., a maker of fiber-optic networking equipment that had yet to book any significant sales. At the time, Cisco's stock was about \$30 per share; today, it trades at less than \$15, halving its buying power in the stock-swap market. So Cisco, which defined the strategy of high-tech takeovers to help move into new networking arenas, recently announced that it would curtail purchases.

Check your vendors' R&D efforts. Are they homegrown? Or did a high-flying stock price let it buy innovation?

Falling stock prices don't just thwart R&D takeover strategies; they also scuttles deals to extend a company's marketplace.



PIMM FOX is Computerworld's West Coast business columnist. Contact him at pfox@computerworld.com.



**White
Paper**

**Enabling
business with**

VOICE

**Business
Information
Management**

COMPUTERWORLD

Enabling E-business with Business Information Management

Information does not exist just for its own purpose — it is used to inform and to instruct people to take actions. In the case of business information, these are actions that frequently span the entire business operation and beyond. It includes suppliers and partners — it spans from placing the customer's order to the request for delivery of the product or service.

Or it could go from the request for a supplier's price quotation to its payment, from the specification of the design requirements to the product documentation, from the worker's original application for employment to the summary of the employee's retirement options. All this information needs to be passed along in a chain that goes from "actor" to "actor" to be utilized

as and when it is needed.

In most organizations, each step is executed by different business departments that are often in different locations or by partners and suppliers that may all be running different business applications and on different computing platforms.

At any point along this chain there is rarely any shortage of information. The problem has usually been one of ensuring that the right information gets to the right person at the right time. This is why many different de-

livery mechanisms have evolved to meet a specific combination of requirements for accuracy, quality, timeliness, mobility and economy. Information is put on pieces of paper, copied and hand delivered, sent by internal or external mail and even pushed through pneumatic tubes. Information from the original pieces of paper may even be transcribed, dictated over the telephone or faxed. Even computer-generated information is frequently printed and then copied and either faxed or delivered. To this has been added such newer delivery media as email messages, alphanumeric pagers, cell phones and other personal devices such as the Palm Pilot.

Internal Business Benefits

Business benefits accrue from a variety of sources whenever businesses implement even simple examples of business information management. Many of these directly benefit both the information producers and consumers and permit them to do their job better and more efficiently. For example, information producers do

By Paul Mason,
Industry Analyst,
International Data
Corp.

Other benefits are more intangible, such as the following: Timely infor-

[illegible]

Timely Information Distribution

Faster Access to Information

cess to important business data earlier than they would by manual processes such as faxes or snail mail.

A complete solution is able to reformat and personalize the information for each type of user. When information output is more effectively tailored in format and medium to the needs of each individual, then this — an effect — provides easier access to the information. This significantly improves the effectiveness of business unit management.

If information can be routed to be accessible across the company, for example, to a Web server, then staff can readily access it from anywhere as needed to serve the customer.

2. **Internal Service Requirements.** Many IT operations are now expected by business management to commit to specific service levels, and frequently compensation (and even job tenure) is dependent on meeting them. Any solution that eases the process of moving information around the company and makes this more reliable helps to enable IT to meet these service levels.

ing information if there is no assurance that it will get to the intended "consumer?"

Conclusion



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BMC Software's Business Information Solution saves time, money and provides better customer service

Frontier experiences immediate business benefits by bringing sales report generation time down from 14 to 16 days to several minutes

Taking too long to deliver commission reports is a sure fire way to make salespeople grumble. That lesson hit home recently at Rochester, NY-based Frontier Communications Corp., a Global Crossing company.

Frontier, a telecommunications and Internet service provider, operates 34 local telephone companies in 13 states. The company generates commission reports for all its sales representatives at headquarters. Until last year, this meant printing and shipping 60 boxes of reports a month. Once they arrived at sales offices, the cartons of reports still had to be broken down and delivered.

As a result, "On average, a salesperson was waiting 14 to 16 days for their report," says Dennis Kenyon, Frontier's director of IT operations. Employees dubbed the slow setup the "Pony Express." Moreover,

managers had only limited capabilities to study their direct reports' commission information and spot trends over time.

Kenyon says the slow turnaround threatened to create a morale problem. "Anyone in sales really likes to know what their commission is," he points out. Disputes took too long to settle, too. Mark Moscicki, a Frontier Communications developer, says if a sales rep had questions about a commission, he was forced to fill out a pa-

per audit request and mail it back to headquarters. Weeks might pass before questions were settled.

Last year, when Frontier decided to solve the problem, a team led by

Kenyon and project lead Mike Miller chose BMC Software's CONTROL D[®] business information management software.

"BMC was by far the best," Mos-

cicki says. "All the resources were right there. Any questions you had, they had [answered by] an expert right away."

"BMC's approach to answering questions and offering up front services," made the company stand out, Kenyon agrees. "You really felt like you were partnering with someone."

Moscicki says the installation and integration of CONTROL D were painless. Frontier runs an IBM[®] OS/390 mainframe. Access security is handled by Computer Associates' CA Top Secret.

At Frontier, it was vital that CONTROL D work smoothly with Top Secret so that salespeople could access their own commission records, while managers could view the records of all their direct reports. Moscicki says there were no integration problems with the products.

Next Frontier turned to the desktop level. Here, BMC Software's CONTROL D/PC allows platform-

Case Study

and media independent viewing, data analysis and information charting.

Once the implementation was complete, Frontier began reaping business benefits immediately. The company eliminated microfiche processing and associated storage costs, saving \$180,000 a year. Mike Miller, a Frontier project manager, says in 2000 the company also saved \$40,000 on report generation costs, as well as 2,500 boxes of paper.

The top priority was reducing turnaround time. It's an understatement to call this a success. The 14 to 16 days sales reps previously waited

for their commission reports has been reduced to minutes. "As soon as the job ends, the reports are out there," Moscicki says. Using CONTROL D/PC and CONTROL D/WebAccess Server, over 1,200 sales people use the system, with no access problems or network degradation.

Frontier reports several other business advantages. Sales agents and managers can now easily view month to month comparisons of commission data, which lets them spot trends faster. And the CONTROL D system can be customized to visually call attention to signifi-

cant numbers or percentages.

Also, Moscicki says, if a salesperson has a question on a commission, "they can expedite an audit." CONTROL D/WebAccess Server lets users attach an electronic note to their report and route it back to headquarters instantaneously. Thus, commission disputes are resolved quickly.

That makes for a happy, productive sales force. Frontier's Miller says feedback from the sales force is "very positive" and adds that while this happiness is "hard to put a value on," it is critical for the company. *

Brown-Forman streamlines sales, forecast and payroll reports to give users more flexibility and customization

In the late 1800s, whiskey was mostly sold in barrels, a method that did not always result in high quality spirits. In order to sell top grade whiskey that met medicinal standards, a young pharmaceutical salesman named George Garvin Brown had the brilliant idea of packaging whiskey in sealed glass bottles. He invested \$5,500 dollars, which today has blossomed into a \$2.1 billion company with 7,400 employees in the U.S. and abroad.

Today this company is known as Brown-Forman Corp. and the packaging of whiskey was key to its early success in its founding year of 1870. But 130 years later, it was the packaging of business reports that spurred a successful cost-savings strategy at the Louisville, Kentucky, firm.

Brown's brand of innovative thinking has led Brown-Forman to many

successes in its long history, including the implementation of a time- and cost saving software system from BMC Software the leader in delivering the most comprehensive e-business system management software.

Two years ago, when a sales report, forecast or payroll report had to be distributed to a business division, it meant printing out and then mailing thousands of pages to hundreds of people around the world. "We have a lot of distributed locations and people who need different reports in different parts of the world," says Rob Evelyn, technology engineer and consultant at the firm.

Reports are generated from the

company's enterprise resource planning, human resources and manufacturing resources planning systems, all of which are based on software from SAP. They are also generated from legacy systems and systems developed in-house.

To cut costs and give more people easy access to key business information, Brown-Forman decided to implement BMC Software's INCON-

TROL™ business information solutions. The CONTROL-D® product automates report-handling tasks for OS/390 systems, including report creation, breakdown, storage, viewing and delivery. At Brown-Forman, CONTROL-D electronically distrib-

"We've seen cost savings in printed paper and time."

**- Rob Evelyn
technology engineer
and consultant,
Brown-Forman**

utes the company's printed output for its business supporting systems.

Today, instead of leafing through a thick sheaf of papers that arrive days after the report was printed, business users can access reports immediately via the Internet or Brown Forman's intranet and print them locally if they so choose. The reports are stored on the CONTROL D server, converted to HTML and placed on the Internet.

"This has made distribution easier by eliminating the need for people to send printed reports through the mail," Evelyn says. "We've seen cost savings in printed paper and time."

Also, there used to be many high level senior executives and lower level line workers who didn't use SAP on a regular basis and didn't always get to see sales forecasts, or they had to request a print out. With the CONTROL D system, "they don't require

intervention anymore," Evelyn says.

Brown Forman has been running the system for more than two years. The company had considered a number of competitive products, but CONTROL D offered greater user flexibility. "We have some users who want the ability to take a report in column format and export it to Excel," Evelyn explains. Also, users can customize the reports, for instance, if they don't want the first five columns in the report, they can move the sixth column to the beginning. "No other products allowed that functionality at the time," Evelyn says.

Brown Forman is using several of BMC Software's INCONTROL modules, including CONTROL V[®], for users to create a scalable electronic document archive on the OS/390 platform and CONTROL DTC, for Windows NT based desktop users

to download, store, view, edit and print reports. As for the users, "they really like it," Evelyn says. "It just makes it easy for them to get data they were never able to get before." And top business executives are thrilled with the cost savings and ability to distribute one report to many people at the same time. "That's just a big thing to us," Evelyn says. "We've got 7,800 employees, and about 500 of them are using INCONTROL right now." ♦

INCONTROL[®] for Business Information Management

Contact Control@BMCSoftware.com or call (800) 811-6763 to get a free demo CD that will show you how to manage your business information quickly and reliably throughout your enterprise.



Assuring Business Availability[™]

Business information management for greater customer service via the Web

For Swedbank, putting documents online means quicker access to information, better security and very happy partners, customers and employees.

It's more than 900 miles from one end of Sweden to the other. That's a long way to scatter the near 700 branches of FöreningsSparbanken (known internationally as Swedbank) and a long way to ship millions of pages of paper documents each month from its headquarters in Stockholm.

Putting those paper reports online would not only save vast sums in transportation, but also give local bank managers more timely and in-depth information about the state of

their businesses. That's why in February 1997 Swedbank went to online storage and retrieval of internal reports and loan documents which the bank would store for its own use, continuing to print only the statements and documents it must send to its 4.4 million customers.

But it's no small chore to efficiently store millions of documents, and provide easy access to them for the bank's 14,000 employees—especially when some documents must be kept 60 years for legal or regulatory

reasons, and when employees need the ability to comment on reports.

That's why the bank has BMC Software's INCONTROL[®] business information management solutions to track, manage and retrieve digital documents that total six terabytes of data—and growing. Another benefit of BMC Software's business information management tools is delivering information to internal employees, external customers and partners via the Web while delivering high-quality service-level management.

And the cost savings and speed made BMC Software's business information management an increasingly valuable part of Swedbank's IT infrastructure.

For Swedbank, the solution included, CONTROL D® WebAccess Server that allows the bank to share documents via the Internet or intranet. The bank also uses the CONTROL D-Page On Demand Toolkit, a software development kit for creating custom applications by using the page-on-demand protocol, for indexing, searching and retrieving documents.

The business information management tools allow information to be accessed through the Web quickly and securely while reducing the expensive process of physically distributing documents, and speeding the decision-making throughout the bank, says senior system programmer Per Norburg.

In 1996, Norburg says, the bank decided to go to online storage and document access, except for "the statements we have to deliver to customers. We wanted to cut down the cost of distribution by air" of paper reports to the 1,200 branches the bank then maintained across the country. The bank purchased CONTROL V® as the platform for a scalable electronic document archive on the mainframe.

A critical feature for the bank was to allow users to enter notes into online reports. "If [users] have to take

action on something within a report, or something is wrong, they can make a note — and send it to the guy in that division or that branch" for further action, Norburg says. The note, along with a date stamp and the

ID of the user who inserted it, will be kept together with the report as long as it is kept within CONTROL D.

"Our end users wanted a system where they could store all kinds of files and documents."

**— Per Norburg,
senior system programmer,
Swedbank**

Using the notes function, the bank has also used BMC Soft-

ware's business information management solution as a workflow application to automate processes that otherwise would have to be done manually. Using INCONTROL, for example, a bank controller can receive a daily list of all the reports a local bank manager should have reviewed, and instantly see if they have been reviewed, rather than having to check the paper version of those reports.

The bank has also used CONTROL D to reduce by up to 60% the amount of storage space needed to archive documents online. Rather than send documents from a local bank branch to an outside vendor to create a bulky scanned image, says Norburg, the bank found a way to directly store only the text produced by mainframe IMS applications in CONTROL D. This requires far less space — and expense — than storing the entire scanned document. Implementing CONTROL D AND CONTROL V required some coding to reconcile differences among the varying ways account numbers had been

stored within the bank's existing applications. "The coding was not so hard," says Norburg, compared with tracking down all the ways account numbers might show up in legacy reports.

Since 1996, the bank has also been using CONTROL D-PC, which allows Microsoft Windows NT desktops to download, store, view, edit and print reports.

Last year the bank began using other business information management products from BMC Software, including CONTROL D-Image, CONTROL D-WebAccess Server and the CONTROL D-Page On Demand Toolkit. CONTROL D-Image accesses scanned images of documents or reports, but Norburg has been pleasantly surprised by its ability to store not only text, but also pictures and video. "Our end users wanted a system where they could store all kinds of files and documents," Norburg says. Using CONTROL D-Image, "you just retrieve [the file] from the mainframe and it will open the right application on the workstation."

According to Norburg, there have been many examples of cost savings at the bank. These savings include: purchasing much less paper to print reports; hiring fewer couriers to transport printed reports to the airport; and less need to pay for air freight. "Also, it's fast," he says. In the past, "if we printed something Monday morning, they [would] have it at the branch Tuesday morning." Now, he says, decision makers in branch offices can see reports as soon as the mainframe finishes the batch job that produced them. ♦

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In the speed-driven world of e, there's no time to waste. With INCONTROL™ for Business Information Management by BMC Software, you can easily provide your users with the information they need, exactly when they need it. This solution lets you Web-enable any document or report so your users have instant access to information, regardless of their location or the location of the document. The requested information can also be delivered in many formats. And with the power of automation, you can manage your business information easily, regardless of the size of your enterprise. So you can reduce costs while significantly improving your service levels.



Ready to see INCONTROL for Business Information Management in action? Email ControlD_INCONTROL@bmc.com or call 800 811 6763 to get a free demo CD that will show you how to manage your business information quickly and reliably throughout your enterprise.

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The once-vaunted business-to-business e-commerce arena is littered with shredded balance sheets, laughable revenue projections and scorched deals. In January, Ariba wanted to absorb Agile Software, creating a congealed mass of collaborative commerce products. Trouble is, B2B exchanges withered, and the bears attacked share prices like a swarm of locusts on a wheat field.

Ariba agreed to pay Agile shareholders stock worth \$2.5 billion. But Ariba's shares have fallen so much that the deal — now canceled — would be worth just \$500 million.

The warning is clear: Don't believe a company's future plans. Wait for the reality. »

JOHN GANTZ

A Revolution in Servers Is Here

THERE'S A REVOLUTION going on in servers — one that's easy to miss because it's starting not in the enterprise data center but in telecom switching, medical imaging and industrial electronics.

Once, servers was just another name for mid-range or mainframe computers, with the major architectural variations relating to an operating system and to the number or processors in a system.

That's beginning to change. Servers are migrating to more open or standard operating systems — such as Windows or Linux — and to more specialized use by their functions. Branded general-purpose servers first gave way to servers with preloaded software, then to hardware optimized for workload with the preloaded software. This is giving way to hardware and software that's customized for a particular workload or application, also known as "appliance servers." As if to ratify this migration, last year we saw an explosion in "rack-optimized" servers or systems such as the Sun Netra 220R and 420R and the Compaq ProLiant DL.



Illustration by a writer
and publisher of *IT* in
Franklin, Mass. One
last line of *IT* headlines.

In the first quarter of last year, rack-optimized servers accounted for 15% of all entry-level server shipments. That doubled by the third quarter.

But that was just the beginning. This year, we'll also see the following:

- Shipments of servers based on the InfiniBand architecture, which is designed to replace Peripheral Component Interconnect (PCI) buses.
- New enhanced workload management software for dynamically changing a server's configuration or workload.
- New low-power processors that enable server rack populations in the hundreds and innovations building on these advances
- Server "blades," or motherboard computers that can be put into subracks and aggregated into

larger systems, which are based today on the cPCI, or compact PCI, architecture (See Exec Tech, page 56).

Picture this: Instead of a single server in your data center, you have racks of servers configured from numerous server blades, each with its own memory, processor and connection. Each blade can be dynamically loaded with software optimized for the function of the blade — for example, handling e-mail, Internet security or content caching. In the morning, you may need six blades to handle your e-mail, but only two after-hours, and the other four can be released for other functions.

Blades are already in use in telecom, military, medical imaging and industrial applications. Vendors include Force Computers, an arm of Soletron; Motorola Computer Group; and Ziatech, which Intel recently bought. IDC's server analysts expect these vendors to expand their product lines first into the Internet infrastructure space — selling to Internet service providers (ISP) that support at least 100,000 end users — and then, as

software improves, into enterprise data centers.

As these new technologies wend their way from the large networks and ISPs and into the rank-and-file data centers, what can you expect?

First, you can expect a mismatch in the hardware capabilities of racks of server blades and the software you need to manage and reconfigure them dynamically. You may be writing code yourself, but then again, you'll have much noticeable improvement in your ability to guarantee performance to your end users.

Second, you'll need some new skills in tech support, maintenance and systems management as well as design.

Finally, if you can't adapt to these new technologies within, say, the next five years, you may find your data center outsourced.

These new technologies will offer those who use them flexibility and performance over today's general-purpose servers that are about equal to the advantages nuclear submarines have over diesel boats. Better dive in. »

READERS' LETTERS

The Real Shortage

I FOUND IT ironic that you chose *Low Wheeler* to represent employers who claim there is an IT labor shortage ("The New Immigration Wave," Business, March 12). I've lived in Pittsburgh for 30 years and find the IT job market very tight, with salaries lower than average. Employers rarely hire outright but hire instead after a trial period as a contractor. Rapidigm, Wheeler's firm, is a major supplier of contractors. I recently sent it a résumé but didn't receive a response, despite 15 years of experience and recent certification in Web programming.

Perhaps it is because of that experience and training that Rapidigm doesn't return my calls. It would prefer to pay less for foreign labor. Meanwhile, mature, experienced IT workers such as myself can only shake their heads in disgust at how the government and the press have blindly accepted the self-serving propaganda of the Information Technology Association of America.

There isn't a shortage of IT labor; there's a shortage of cheap IT labor, which isn't the same thing.

Bob Nolle
Senior programmer/analyst
Dix's Sporting Goods
Bethel Park, Pa.

E-Commerce Rights in the Constitution

I FOUND Patrick T. Bodess's article on Internet taxes to be quite informative ("Online Retailers Want Simpler Rules Before Collecting Taxes," Computerworld.com, March 14). However, this wording stunts the reader to support cross-state taxing of Internet sales: "Under two previous rulings by the U.S. Supreme Court, a business isn't required to collect sales taxes on an order unless it has a physical presence in the state where the customer is based. State governments are trying to get Congress to change that restriction, fearing that they eventually will lose significant sales tax revenue if so-called remote sellers continue to be given a free pass from collecting the taxes." The Supreme Court was simply following the Constitution. Article I, Section 9 states,

"No Tax or Duty shall be laid on Articles exported from any State." I wouldn't call a constitutional protection a "free pass."

Jeffrey J. Frank
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Holler-Than-Thou AOL Shouldn't Cast Stones

IN MY EXPERIENCE, AOL servers are the source of about half of the spam I get ("AOL Spam Filters Block E-Mail From EarthLink and Others," Computerworld.com, March 20). This is a case of the pot calling the kettle black. AOL should be fined for deliberately losing people's e-mail, not being able to retrieve it or track where it went, and not even notifying senders that their e-mails weren't received.

Paul Poetz
Netwin Inc.
Atlanta

Options for Win 2k

THE LETTER "Thanks Down to Single-User OS" (Readers' Letters, March 12) makes me wonder if the user has

done any research or testing regarding Windows 2000. It is true that in Windows NT 4.0, most things have to be done via a GUI, but there are numerous tools in Windows 2000 that administrators can use to bypass using products like PCAnywhere. Terminal Services works quite well over a 56K dial-up connection and there are also a telnet server and the remote command. Using the remote command and Windows Script Host, I can do all of my administration from a command line. If this user hasn't explored these services in Windows 2000, he is wasting his company's money buying PCAnywhere.

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COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jarrod Eskie, letters editor, Computerworld, PO Box 9771, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

Windows 2000 ADVANTAGE

The Web Magazine for IT Leaders Implementing Windows 2000 and Windows NT with Compaq Services and Solutions

Online this week:

POINT OF VIEW

Agility

As applied to the computer industry, the concept of agility takes on a new meaning. Working together, Compaq and Microsoft are constantly striving to embody that concept. www.windows2000advantage.com/pov/03-19-01_agility.asp

TECH EDGE

Visual Studio.NET - A platform for Web application development

The Microsoft .NET initiative is rapidly taking shape with the growing availability of solid services riding on top of Microsoft Windows 2000. www.windows2000advantage.com/tech_edge/03-12-01_visual_studio.asp

Q & A

Compaq server exec reviews market trends

Hugh Jenkins, director of marketing for Compaq's Industry Standard Server Group, discusses what users expect from their servers and how evolving server technology is empowering them. www.windows2000advantage.com/q/a/03-05-01_market_trends.asp

COLUMNS

Windows XP, a.k.a. "Whistler," impresses our reviewer

The recently unveiled Windows XP, which embodies the client-side version of the enhanced Microsoft Windows 2000 version known as Whistler, offers stability, power, flexibility and extensibility. www.windows2000advantage.com/columns/02-26-01_win_xp.asp

CASE STUDIES

RadioShack, Starbucks Mixing Commerce Server 2000 trail

Before Microsoft's Commerce Server 2000 hit the street, it went through an extended beta testing trial with partner companies. Two of them, RadioShack.com and Starbucks used it to accomplish specific e-commerce goals. www.windows2000advantage.com/case_studies/01-22-01_commerce.asp

COLUMNS >

Defining enterprise class: Is Windows 2000 ready?

Many different elements comprise true enterprise class computing. In order to determine if Microsoft Windows 2000 fits this elusive bill, Aberdeen Group's Tom Manter, takes a detailed look at Microsoft's efforts to distinguish Windows 2000 among its operating system peers.

For the full story, visit: www.windows2000advantage.com/columns/04-02-01_enterprise_class.asp

NEWS >

Windows XP Beta 2, Tablet PC, wireless support headline WinHEC

Recently, Microsoft held its 10th annual Windows Hardware Engineering Conference (WinHEC) in Anaheim, Calif. The main themes surrounding the conference revolved around the availability of Microsoft Windows XP Beta 2, a new device still in development called the Tablet PC and wireless technology.

For the full story, visit: www.windows2000advantage.com/news/04-02-01_xp_beta2.asp

FEATURES >

Hardware, application compatibility are critical Windows 2000 planning and implementation issues

Stride Rite is a good example of a company that has successfully migrated to Windows 2000 after carefully dealing with a wide range of hardware and application compatibility issues.

For the full story, visit: www.windows2000advantage.com/features/03-26-01_planning_implementation.asp

www.Windows2000Advantage.com/300

NEWS >

Whistler Beta 2 set for wide-scale scrutiny

What do you do if you receive 30,000 customer-feedback reports in just two months? If you're John Gray, you pay close attention. As a manager responsible for Windows releases at Microsoft, Gray and his team help run Microsoft's "Whistler" Server Beta testing program. Gray knows from experience that a rigorous review by customers is critical before the software is finalized and sent to manufacturing later this year.

Whistler, the code name for the next version of the Microsoft Windows server operating system, represents the customer-driven evolution of Windows 2000. With Whistler, Microsoft is building on the reliability, manageability and scalability that customers value in Windows 2000, while offering support for new, high-performance 64-bit hardware architectures based on Intel Itanium processors.

Businesses of all sizes are deploying the Windows 2000 server family in record numbers. Windows 2000 servers recently reached the one-million-licenses-sold milestone, just 12 months after launch — 30% faster than Windows NT 4.0.

With the release of the Whistler Beta 2 server family, Microsoft sets in motion one of the largest and most ambitious software testing programs in its history. Nearly 300,000 customers, partners, OEMs, developers and other testers will have access to the latest version of its new server operating system software, and all of their comments will be reviewed before the product comes close to being considered complete.

"The Beta testing program is our opportunity to take our server products to a wide audience of people who will help us tune the fit and finish," explains David Thompson, vice president of the Server Product Group at Microsoft. "The input we receive from customers is absolutely critical to assuring that we build the product they need and want, and one that will perform as they expect."

For the full story, visit: www.windows2000advantage.com/news/04-02-01_whistler_beta2.asp

QUOTE OF THE WEEK >

"With Windows 2000, Microsoft designed in new features that help overcome the greatest cause of system failures — namely software conflicts."

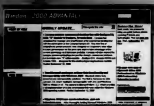
— Tom Manter
research director
The Aberdeen Group

What is Windows 2000 Advantage?

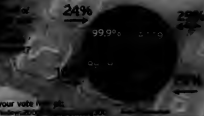
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WEEKLY POLL >

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ALEX TORRALBAS

Privacy Invaders Use Children As Their Shield

KIDS HAVE BECOME politicians' favorite battering ram for getting whatever they want. Whenever some policy or program needs some Shmola to make it palatable, they solemnly tell us that it's "for the sake of the children." In the IT realm, this usually in-

volves an assault on freedom or privacy.

Maybe it's filtering software on PCs at public libraries, or prosecutors strong-arming bookstores into giving them lists of what books people have ordered. Mostly, the impact is being felt on the Internet.

There, the almost daily news reports of pedophile rings and kiddie chat room stalkers give the

politicians wonderful ammunition to slip more and more antiprivacy and antifreedom legislation onto the agenda.

There's no question that the abuse and predation of children is abhorrent and deserves the aggressive stance taken by the authorities. But what's hiding behind this "who can argue against it" facade is far more ominous.

Even governments that appear to be liberal and respect individual rights are working overtime to get some kind of control over the Internet. It scares them. It's too loose and anarchic, and they just don't get it. So their tack is to wave some kiddie porn around and demand that the cops be granted sweeping rights that threaten all manner of legitimate activity.

For example, in Great Britain a frightening new law, the Regulation of Investigatory Powers Act 2000 (RIPA), has taken effect. In a nutshell, it compels Internet service providers to keep track of everyone's activities on the Internet. Everyone. All Web site visits, e-mail, Usenet, everything. Encryption? Forget it: If you "forget" your password, you could get two years in the slammer, even if you haven't been charged with anything.

The British justify this unbelievable intrusion into privacy as necessary to track international terrorists and drug kingpins. They've nabbed none of the above but periodically trot out a pedophile or two as proof of why they need RIPA. Secret things being, well, secret, we can only guess what else they decide merits scrutiny and for what purpose. Industrial spying? Politicians looking to smear opponents? One badly imagined that Osama bin Laden will go down in flames

because his Hotmail account is tapped.

British law is very different from ours, but we're not exactly looking good in the surveillance sweepstakes, either.

Consider Uncle Sam's Carnivore. This "black box" that the FBI is trying to make a part of our Internet experience is capable of absorbing a tremendous amount of information about all of us, not just the intended targets of investigations. It's quite random in its techniques by design, and the only protection we have is the FBI's word that it won't be misused. This is the same FBI that spied on antiwar protesters during the Vietnam War, and on Martin Luther King, Elvis and John Lennon — and denied it at the time.

The problem I have with these and many other schemes, and so should you, are the trade-offs we're making. Totalitarian, fascist or authoritarian societies allow little or no freedom or privacy and boast of their low crime rates. Even "for the sake of the children," we need to think twice and hard before we say yes to the government's intrusive wishes. ▀

WILLIAM M. ULRICH

IT-Business Engagement Starts With Top Execs

REMEMBER THE DAYS when users tossed requirements over the wall, IT tried to interpret what they meant and — two years later — delivered a system that missed the mark? Those days are long gone because IT is too critical to the bottom line and time frames are too compressed to continue down that path.

Design, development and testing have become highly iterative activities, requiring participation from business analysts at every step of the process. Therefore, IT and business professionals must work as a team to tackle tough assignments in highly constrained time frames. And IT must take the initiative to educate, motivate, persuade and cajole business executives, management and analysts to work as a team.

Most business professionals want to cooperate with IT; they just don't seem to have time for what's perceived as "IT's job." That's why education and motivation begin with the executive team to help send a message on how critical it is to have everyone working together.

The demand for new systems, flexible access to

legacy data and increased dependence on technology mean that executives are poised to cooperate to accomplish these goals. IT must leverage this support to change the way business professionals perceive their role in the development and evolution of information systems.

Senior IT executives need to convey to business executives how critical it is to establish collaborative, cross-disciplinary business and IT teams. But before they launch another reorganization, executives should have business and IT managers, analysts and technicians help form the teams needed to meet high-priority information requirements.

A good approach is to hold a meeting where business, IT and third-party participants, such as ASPs or outsourcing firms, are encouraged to share opinions on the best way to work together to achieve common goals.

During this meeting, participants would organize according to ongoing IT projects or functions. This allows participants with common objectives, such as integrating supply-chain management, to form teams based on a common purpose. Executives would provide a list of projects and instruct people to join teams related to their jobs.

Management should encourage each team to experiment with ways to improve business and IT project collaboration before making any organizational changes. Approaches should focus on improving communication among all project participants. Executives should review each team's purpose and oversee them as they do today.

Various ways to improve communication and collaboration include placing IT personnel into business units, using external facilitators, creating social time so teams can get to know one another and holding off-site working sessions so that teams can organize in a quiet environment.

A development team, for example, could hold an off-site meeting to clarify its purpose and build relationships. The meeting could open by having each member share what he believes is the most important factor in making the project a success. The team could then draft a project purpose and operating principles based on these success factors to guide project activities.

A typical project purpose might read: "To build an e-business system that consolidates billing data into a single invoice, accessible to customers over the Internet." A sample principle might state: "All project requirements, designs, plans and results may be viewed at any time by any project participant." Teams should share success stories with other teams. Whatever approach a team uses should be augmented by the latest development technologies. For example, online conference tools can be used to reduce the need for in-person meetings. Integrated development environments can be used to develop and share designs, test plans and results.

It's important to allow teams to see what works for them and not to impose management's view on the individuals doing the work. Forced collaboration doesn't work. The important thing is to be creative, stay focused on your project purpose, have some fun and share what works best. ▀



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BUSINESS

SHRINKING MANAGEMENT

As the labor market tightens, laid-off IT managers are lowering their standards when it comes to job-hunting — a good move, say recruiters and economists, who warn that middle management is being hit hardest by the slowing economy. » 34

PDA PASSIVITY

Like PCs in the 1980s, PDAs are meeting resistance from IT departments. But that resistance had better disappear fast, writes Peter G.W. Keen. » 36

TAXING TIMES

H&R Block's IT workers have been on overdrive since December. But come April 16, they'll finally get the chance to take a breather. » 38

VC EVOLUTION

The time has come: Venture capitalists (VC) are getting back to basics. They're investing in technologies with proven customers and real revenue streams that can transform markets. » 42

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Now that shared services have been around for a few years, IT managers are discovering just how difficult they are to manage and market. » 46

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THE BATTLE FOR E-COMMERCE DOLLARS

NOW THAT WE'RE IN AN ECONOMIC DOWNTURN, senior management may be more selective when it comes to shelling out money for an e-commerce project. But when you have a project that can help maximize revenue or possibly streamline your company's supply chain, you're likely to get the attention of top-level executives.

38

Laid-Off Tech Managers Mull Pay Cuts, Demotions

Economist: Middle management is hardest hit by economic downturn

BY JULENKA DASH

Sorting gray hair and a preppy sweater at a recent pink-slip party in Manhattan, 37-year-old Nicholas Hart looked distinguished in the crowd of black-clad twentysomethings.

But even with his 15 years of IT experience, including two management jobs, Hart said he's ready to take a hefty pay cut and demotion in order to find work.

That's a good move, according to recruiters and economists, who warn that as in the early 1990s, much of the downsizing in the near future will come from the middle management ranks.

"They may never have those kinds of jobs again, if companies can make do with fewer people," said Alec Levermore, an economist at the Santa Monica, Calif.-based Milken Institute.

A recent study by the Information Technology Association of America in Arlington, Va., revealed that IT hiring plans have been slashed by almost 44% compared with last year's. Companies will hire a total of 900,000 IT workers this year vs. 1.6 million last year, according to the study's findings, which were culled from phone interviews with nearly 700 IT managers.

The hard-core techies are the people who are still in high demand.

TAMMY ANDERSON,
MANAGING PARTNER,
LYSEN ANDERSEN
EXECUTIVE SEARCH

"I do not see the market changing for the next six months," said Tammy Anderson, a managing partner at Cumming, Ga.-based Lysen Anderson Executive Search Inc. IT job-seekers shouldn't be surprised if they see their salaries drop by 15% to 20%, she added.

"Many companies are scaling back and doing so at the manager and director level," said Anderson. "The hard-core techies are the people who are still in high demand."

Workers can "build tangible goals to get back to the [salary] levels" they once earned, she said, by asking their new em-

ployers to offer salary reviews after one year.

Hart said he plans to rephrase the three years of IT management experience on his résumé to "network engineer," a title he believes will convey his hands-on technical experience rather than his management skills. He has been job hunting since he was laid off in January from a firm that sells wholesale licensed handbags to New York retailer Tommy Hilfinger Corp.

Hart also expects to take a 25% pay cut. "I can't just sit here forever without a job. If I knew next month I'll get a comparable job, I'd probably wait it out," he said.

Similarly, 37-year-old Rob Camp (not his real name), who was laid off several weeks ago from a New York-based Internet consulting firm, expects that his next job title will be less prestigious than his previous title, vice president of partnerships and content.

"I'm not necessarily interest-

Disappearing Jobs

According to the Information Technology Association of America, demand for workers will slow in the following areas:

**DIGITAL MEDIA
Down 62%**

**DATABASE DEVELOPMENT/
ADMINISTRATION
Down 58%**

**WEB DEVELOPMENT
Down 25%**

ed in retaining the title. I felt the title was overblown to begin with," he said.

Instead, Camp is looking for work as a product manager, a position that could eventually land him in the executive ranks, he said. But he noted that his once-\$16 salary will likely be slashed by \$20,000.

But Michael Berch, who is 45

years old, has been holding out for a job in middle- or even senior management. Berch was let go as an IT director at Oak Ridge, Tenn.-based Internet Pictures Corp., which features online virtual tours of real estate properties. He said he probably wouldn't take a job, say, in systems administration, because it wouldn't be a good career move. But he acknowledged that he may not recoup his former six-figure salary.

About six weeks ago, Berch was ready to begin a consulting assignment at a start-up, but the position was offered to a less-costly temporary worker.

Job seekers who don't have management experience, such as 25-year-old Dan Levine (not his real name), still remain optimistic. Levine, who lost his job as an Internet strategist at an entertainment firm last December, said he will continue job hunting in hopes of finding something with a comparable title and salary. ■

ERIC J. SINROD/E-LEGAL

The Sex.com Saga

SEX SELLS, so the domain name Sex.com has considerable value. Indeed, in what is believed to be the largest domain name award ever, a federal judge in San Jose on April 3 ordered the former owner of Sex.com to pay \$40 million in compensatory damages and an additional \$25 million in punitive damages to the person who originally registered the domain name.

As the story goes, Gary Kremen registered Sex.com with Network Solutions Inc. in 1994 but did nothing specific with the domain name. According to Kremen's lawsuit, Stephen Cohen obtained the domain name from Network Solutions in 1995 based on a forged letter.

Cohen argued in his defense that he properly bought the domain name for \$1,000. He also alleged that he had trademark protection for Sex.com, based on an online bulletin board system he had run previously.

Federal District Court Judge James Ware sided

with Kremen and several months ago ordered the return of the domain name to him.

The judge also ordered an accounting of the financial operations of the Sex.com Web site; required the placement of \$25 million, to be held by the court until both a final judgment and full assessment of damages occurred; and prohibited Cohen from selling or transferring assets related to the Web site.

The stakes, of course, are considerable, as some people believe that the Sex.com domain name alone is worth

tens of millions of dollars. In addition, Kremen's attorney, Timothy Fox, reportedly said that Cohen has made \$43.3 million from the Sex.com Web site, quite close to the ultimate \$40 million compensatory damages award.

According to a press release from Kremen's attorneys, Ware reached his ultimate ruling by finding that Cohen had "devised and executed a fraudulent plan to steal the domain name Sex.com from Gary Kremen."

The trial included a warrant for Cohen's arrest based on his failure to appear in court as ordered. Ware's April 3 decision specifically provides that the arrest warrant should remain out-

standing until Cohen surrenders property of his various ventures to the court.

If this wasn't trouble enough, Cohen is apparently under house arrest for other reasons in Tijuana, Mexico.

And the saga doesn't end there: An Oregon attorney now claims that he's entitled to a 15% interest in the Sex.com site, based on his early work for Kremen in the




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case against Cohen.

To the extent that there is real money behind Sex.com, the attorney's fees issue could become a real brawl. It has been reported that Kremen conferred with more than 20 attorneys during the life of his case.

At the end of the day, there can be little doubt that certain domain names in cyberspace have real-world economic value—even if their ownership is sometimes difficult to determine. ■

A person in a dark suit is seen from the side, looking at a large screen that displays a complex, glowing network of data points and lines, resembling a city skyline or a data visualization. The scene is dimly lit, with the primary light source being the screen itself.

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WORKSTYLES

H&R Block's IT Crew Survives Four Months of Taxing Times

Interviewee: Dan Henderson, data center manager
Company: H&R Block Inc.
Main location: Kansas City, Mo.

Resume: Since 1998, "Since then, we've gone from a slinky AS400 shop to a huge IT organization."

Number of IT employees: About 60 in the data center; 250 to 300 in corporate IT, plus 20 regional IT support teams for the company's 10,000 tax preparation offices. During tax season each year, about 250 temporary IT employees are hired to handle calls into the help desk.

Number of employees (and season): About 20,000. "During tax season, the company grows to 100,000 with about 80,000 seasonal employees. A lot of our offices are open for about four months of the year."

What is tax season like for IT? "What's different about working here is that while employees in most companies are slowing down in December and enjoying the holidays, here it's the opposite. We have major work to do and put in a fair share of weekend hours and late nights preparing to lock down before peak season starts. We're on prep and nerds in December and January. When is peak season? The first two weeks following the Jan. 28 release of W-2s are huge because of all the people depending on their tax refunds to purchase homes or pay bills. We actually have to turn business away during that time because we can't handle the load."

"That's one reason we launched our Online Tax Preparation product, so we could recoup some of that business, and we're already up 500% over last year in completed online tax returns. The other peak is during the first two weeks of April."

How does the data center help H&R Block keep pace during such a hectic period? "We have a Financial Information Network that receives all

completed returns via frame relay or batched up every two hours via dial-up. Information from those is extracted, encrypted and dumped into an Oracle database engine. Then we do summarizations of how well we've done - bookkeeping-type data - that are placed on various intranet sites where regional and district managers can review their stats for the last week, last month, etc. They use those to plan for upcoming weeks, in terms of head count and so forth."

Work-life? "It's typically eight and a half hours with an hour for lunch, but during tax season, we're putting in longer days, and the developers who support our [online tax preparation] product are heavily engaged. The tax laws are constantly changing, so keeping our system up-to-date is an ongoing battle."

Most people carry beepers? Cell phones? "Oh yes, but during tax season, we're on heightened alert and everyone is on call."

What will you do on April 17? "We'll take a breather, and then we have to start preparing for next year's tax season."

IT training: "Our CEO is very big on training, and the rule of thumb is 80 hours per associate each year."

Bonus programs: Short-term incentive program and signing bonuses. "Depending on your job, you can receive up to 30% of your salary as a bonus."

Dress code: Business casual, with casual Fridays.

On-site day care? "No, but we have a tax-free fund you can contribute to from your paycheck to pay for child care."

Little perks: "We can visit to the Kansas City Chiefs, so during football season, you can put your name in a hat for free tickets."

Would employees feel comfortable e-mailing Henry Block? "Absolutely. He's the most approachable, outgoing guy you could ever meet. A very classy gentleman."

-Leslie Jay Goff
(goff@netcom.com)

BUSINESSOPINION

PETER G.W. KEEN

Embracing the PDA

THE PC BEGAN IN THE LATE 1970s as a stand-alone device that was literally "personal." Initially, many corporate information systems departments resisted it for three main reasons: First, it was a toy for hobbyists and not a real computer. Second, it intruded on their control

of most aspects of IT decisions, and third, it threatened the integrity of the company's technology base in terms of security, standards, support needs and operations. Yet people loved PCs and were going to use them regardless of what IT thought.

Twenty years later, substitute the personal digital assistant (PDA) for the PC. Handheld tools like the Palm Pilot, Handspring's Visor and Compaq's iPaq began as stand-alone personal tools with limited functionality — two of the first three IT concerns. Now that PDAs are becoming able to access corporate data and synchronize information with desktops, the third concern comes into play.

PDAs, Web-enabled mobile phones, wearable computers and pagers/e-mail devices, such as Research In Motion's BlackBerry, demand as major a shift in the design, operation and support of the corporate technology platform as did the networked PC. In the early 1980s, IT wasn't ready for the PC. But it must be ready for the wireless, PDA and handheld era.

As with the PC, these new tools don't fit automatically and easily into today's client/server architectures. Nor do they fit easily into the organizational processes for balancing central coordination of the enterprise platform with decentralized use. When a manager brings a Palm to work, adds a communications link, downloads data from the Web and accesses e-mail, all the old PC "problems" return. But they can't be treated as problems; they must be turned into business opportunities and IT responsibilities.

The first need is for policy. It's often unclear who owns the PDA. It may well have been purchased by its owner, not the company. When the PDA is in a briefcase, it's personal. When it's synced to the office desktop, it's organizational. This demands policy, architecture and support procedures. The faster that IT moves to establish the same types of policies the company has for PCs, the better. Some principles:

1. Recommend specific products in order to discontinue operating system proliferation, such as the Palm OS, Psion (mainly in multinational companies), Windows CE and BlackBerry.

2. Establish volume purchasing agreements for these products.

3. Select portal software for handhelds so that access to corporate information resources and intranets is coordinated and made secure.

4. Establish support and training up-and-shoulders for managers and salespeople. Even simple PDAs require training when they're used to access corporate data, sync to Microsoft Exchange and connect to the corporate intranet.

5. Get ready to address the coming single-most complex issue for IT in the mobile commerce era as the extension of e-commerce, PDAs and handheld translation software and portals.

All the new devices involve the Web, but they either use particular standards for displaying Web information, or their limitations of speed and screen size require Web pages to be simplified, tweaked and re-formatted. To meet users' needs here, IT must embrace Wireless Markup Language, Handheld Device Markup Language, Voice Extensible Markup Language and the Wireless Application Protocol. And more standards will come.

IT can't view the PDA and other new wireless devices as toys, intrusions or threats to the integrity of the enterprise client/server platform. Like the PC in the 1980s, people love these new devices and will use them regardless of IT. They'll then be mainly tools for personal productivity.

When IT takes the lead in welcoming PDAs and adapting its architecture, services and support of them, PDAs will become the powerful next generation of organizational tools, just as the PC did. ■

Keen (peter@peterkeen.com) is chairman of Keen Innovations (formerly The International Center for Information Technologies) in Fairfax Station, Va.; a senior fellow at Differentia, a European business-to-business consultancy; and a distinguished visiting professor at the University of Delft in the Netherlands.



What It's Like To Work at...

IT must be ready for the wireless, PDA and handheld era.





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Wrangling for E-FUND

Getting senior management to sign off on big-ticket e-commerce projects is no gimme when times are tough. Here are a few approaches that shrewd CIOs have taken to get the go-ahead on key projects. By Sharon McDonnell

WHAT A DIFFERENCE A YEAR MAKES IN getting e-commerce projects approved. "A year ago, organizations told me they had to do something 'e,' their boards were concerned about the dot-coms and they were suspending rules in getting projects evaluated," says George Reilly, an e-business analyst at Gartner Inc. in Stamford, Conn. "Now the rules are back in place, with the traditional ROI risk-reward ratio and payback period being applied to projects for the first time in years."

"Customer-facing, revenue-generating projects focussed on the top line that extend opportunities to generate more sales and cross-sell products, since many companies are suffering from reduced sales—these are the projects that will be approved," says Tom Mangan, a partner and global leader of enterprise technology at Andersen Worldwide in Chicago. "As the economy slows, companies are pulling back, looking at large expenditures and asking what they get for it," he adds.

That's borne out by a recent survey of e-business leaders at 100 companies with at least \$500 million in sales. The survey, conducted by Boston-based AMR



Research Inc., found that just 23% of the respondents planned to increase their e-commerce spending in the current downturn. But 87% planned to either keep or increase e-commerce spending in areas intended to win and keep customers, streamline supply-chain activities and improve efficiencies using business-to-business online marketplaces.

For instance, top brass at Toysrus.com Inc. in January greenlighted a plan to add an online boutique for Imaginarium, a chain of 40 specialty and educational toy stores acquired by Paramus, N.J.-based Toys R Us Inc. in 1999, through its partnership with Amazon.com Inc. in Seattle.

Last August, Amazon.com agreed to handle fulfillment, customer service and distribution for Toysrus.com, in which Toys R Us is a majority investor.

The world's biggest toy retailer continues to handle product selection and purchasing for the site.

Mixing the Imaginarium assortment that will be being installed in some Toys R Us stores, the online addition is expected to go live by September.

"Imaginarium is a brand very strongly associated with toys that are harder to find in a mass-market channel," says Jeanne Meyer, vice president of strategy and corporate communications at Toysrus.com in Fort Lee, N.J. These items carry higher prices than big margins that should resonate with high-income, highly educated buyers.

Toysrus.com also approved the transfer of the Babieus.com Web site, which sells items ranging from strollers to baby monitors, to its own store on Amazon.com. The transfer of Babieus.com is expected to go live this spring.

Meyer points out that it's a big challenge to transfer thousands of items from one distribution center in Memphis to several Amazon.com distribution centers and into those centers' inventory management system. But based on its forecast, the effort to transition the back end of Babieus.com "will save 40% of [Toysrus.com's] operating costs, after paying fees to Amazon.com, based on what we learned from our cobranded toy store last year," says Meyer. "We wouldn't do it unless we had a great experience with Amazon.com last year, we tried our online sales."

Meanwhile, a decision to launch an extranet for Toysrus.com vendors was approved in February; beta-testing is expected to start this summer. Using the extranet, vendors should be able to check inventory levels and consumer demand in real time instead of monthly or weekly and act quickly if items are out-of-stock, which should translate into higher customer satisfaction.

"We're driven by the Five P's: profit, profit, profit and profit. This is the kind of project now being approved," says Meyer. "We're taking a hard look at the economics of our product mix, being more careful to offer products that make sense online and meet the demand and moving away from low-ticket items. For example, we do higher video game sales online. Or instead of one Matchbox car for under \$3, we might sell an assortment of 10 to 15 Matchbox cars exclusively online."

Officials at Toysrus.com wouldn't disclose dollar figures for these efforts. But Reilly estimates that such an extranet costs "millions, if not tens of millions, for any substantial company to do this," depending on scope, volume and the need for real-time integration into back-end systems. Adding a store to an existing Web site, "which is pretty rich and product-intensive," costs an average of \$2.5 million, says Geri Spieler, a Gartner research director.

Shortening the Supply Chain

The AMR survey also noted that 94% of the companies polled planned to increase their investments in business-to-business trading exchange projects. For example, Morristown, N.J.-based Honeywell International Inc. agreed last month to become one of the 12 principal investors in Cordiem LLC, a Web-based global marketplace in Washington. Cordiem is aimed at saving time and money in the aviation industry's \$500 billion supply chain by streamlining key areas such as maintenance and engineering, fuel services, and food and beverage catering.

The rationale behind Cordiem, whose rollout is expected late this spring, is "fundamentally to make the aerospace industry more efficient, use more modern technology tools, streamline purchasing and

Dickering for Dollars

Tips on winning approval for e-commerce projects:

- Think more like a business executive and acquire a comfort level for presenting projects to non-tech executives in their language.
- Have a strong business case and quantify a project's expected revenue, productivity and customer satisfaction gains as much as possible.
- Use the slowing economy as an argument in your favor. Tough times means increasing sales and efficiency are more important than ever.
- If you're slowing toward a business-to-business online marketplace, build alliances with other partners by pointing out the mutual benefits.

better marketplace inventory," says Jim Talbot, president of Honeywell Aerospace Services, a Phoenix-based unit of Honeywell, one of the world's biggest aircraft engine and equipment makers.

"As a supplier, we want to expand our service capability to provide spare parts, overhauls and rebuild engines. But we want to take the paperwork out and build connectivity between the airlines' purchasing and order inventory and our internal systems," Talbot adds.

The key to obtaining approval from Honeywell's CEO and the head of its aerospace division was "an attainable business goal we could clearly articulate and getting customer input right upfront with the airlines," Talbot explains.

Better Sales Follow-Through

More effective sales follow-through is what drove Kmart Corp. to finish installing more than 3,500 Internet shopping kiosks in 1,100 stores nationwide in December. Blinking blue lights and jazzy signs draw shoppers to the kiosks, which connect directly to the BlueLight.com Web site, where 200,000 Kmart products are for sale — more than twice what's available at the average Kmart.

Customers pay for merchandise by swiping a credit card or prepaid Kmart cash card at the kiosks, which are found on counters in the customer service, sporting goods and electronics departments.

A plan was approved in late August to convert the pre-existing electronic catalog machines by the board of BlueLight.com LLC, the San Francisco e-commerce arm of Troy, Mich.-based Kmart. The board includes Kmart CEO Charles Conway, Kmart CIO Randy Allen, BlueLight.com CEO Mark Goldstein and Rex Golding, principal managing director at Softbank Venture Capital in Mountain View, Calif., a major investor.

"Everyone saw this was an asset not being fully realized — [one] that Kmart could make a lot more effective and very important to our overall 'sticky bricks' strategy to avoid losing sales if a customer can't find an item or a store is out-of-stock," says Steve Chaffin, BlueLight.com's director of in-store marketing.

Kmart isn't alone in looking past the current economic downturn to the upside business potential that e-commerce can deliver. Says Jeetu Patel, executive vice president of research at DocuSign Inc., a Chicago-based technology research firm, "Smart companies aren't curtailing e-commerce spending. The last thing you want to do is cut the mechanism that generates revenues."

McDonnell is a freelance writer in Brooklyn, N.Y. Contact her at sharonmc@compuserve.com.



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The New VC Mantra: SHOW ME THE CUSTOMER

ASPs, optical networking and specialized chips still attract money, but venture capitalists are saying goodbye to content. By Pimm Fox

FTER CLEARING AWAY the wreckage from the venture capital excess of last year, when it seemed that anyone capable of putting together a PowerPoint presentation could land a substantial first round of financing, the venture world now appears to have a more realistic focus.

Venture capital investors "have shifted away from new company formation to landing additional funding for existing companies," says Chris Gaffney, a managing partner at Boston-based Great Hill Partners LLC. And those companies must have real revenue and a clear value proposition before venture capitalists will plow more money into them.

Gaffney cites firms such as Intralinks Inc., a New York-based application service provider (ASP) that provides a shared online workplace for document management. Intralinks received \$40 million in new equity capital in February from New York-based Rho Management Co. and investment affiliates of Soros Private Equity Partners LLC, also in New York.

Intralinks "has a subscription-based model and customers such as SunTrust banks; that's attractive to a VC," says Gaffney. "The ASP service space is still getting money, provided you have real paying customers."

Bill Elkus, co-founder and managing director of Pasadena-based Idealab Capital Partners, agrees. He says the market has changed dramatically since last year, when an event worthy of winning fir-

mancing for a firm might be "you hired 100 people."

Today, it's back to basics. "You need verifiable customers, real products and services, and experienced management," says Elkus. "We are going back to the time when entrepreneurs made a product — say, an optical transceiver — and then came to a VC with beta tests, referenceable orders and customers. That is still financeable."

According to Elkus, venture capitalists today are interested in companies that have attributes that will allow them to transform large, competitive markets. For example, ASPs' software industry, as a big impact on the software makers that can evolve into a server-based IP model or cms store data for an enterprise.

Money is also flowing into wireless technology at the enterprise level. For example,

San Francisco-based Neomir Inc. lets enterprise users access applications and information from remote devices such as pagers, Wireless Application Protocol-enabled cell phones or personal digital assistants (PDA). They all use public-key infrastructure and Wireless Markup Language technology. "Neomir is going after a real market and [has] customers such as BellSouth Wireless Data," says Elkus, referring to the company now known as Cingular Wireless.

For Adam Grosser, a general partner at Foundation Capital in Menlo Park, Calif., investment prospects must tar-

get Fortune 1,000 customers and have a direct sales model. "Technology — telecom, network equipment, semiconductors and enterprise software — are our focus," he says.

Grosser says he looks for companies that "can support great gross margins, north of 55% and preferably in the 60% to 70% range. This gives you a possibility of scaling a business from cash flows in a reasonable time frame." So if a company can demonstrate sales momentum in a large market segment, the organization will be financeable "until ... it is self-sustaining," Grosser says.

Recalling last year's venture capital frenzy, Grosser says content is dead, as is anything that's advertising-supported. At Foundation Capital, telecommunications and big iron for networks are attractive, though valuations for all entities are down significantly this year.

"Everyone is looking to cut the burn rate and bring about profitability as soon as is practicable," he says.

Optical start-ups are still interesting, as are network systems that increase capacity and networking services to metropolitan areas, says Grosser. "The theme is 'more with less'; less power, less rack space, higher integration to deliver faster throughput," he says.

Alan Salzman, a founding partner at San Bruno, Calif.-based VantagePoint Venture Partners Inc., says broadband and wireless communications are the dominant trend right now, "but you still need to have a diversified portfolio of venture investments."

In addition, he says he sees a big demand for specialized semiconductors.

For example, one of VantagePoint's portfolio companies, BOPS Inc. in Mountain View, Calif., develops scalable and reusable digital signal processors for applications such as digital cameras and PDAs.

"We're seeing semiconductors getting so dense that we like new [ways] of packaging

the chips," says Salzman. For example, he says, that's what's behind Silicon Bluebird Inc., a Fremont, Calif.-based company that develops high-performance, low-cost I/O interconnect product platforms that address the convergence of silicon and systems.

Optical component makers are also prime targets for funding. For instance, Billerica, Mass.-based Assan Technologies Inc. is focused on a new class of optoelectronic components that can accommodate a range of optical devices that are now being developed and deployed by the telecommunications equipment industry.

"This is complex stuff and it is where we see current investments paying off," says Salzman. ■

Where the Money Is

A selected list of companies receiving funding during the first quarter.

SEMICONDUCTORS

Semiconductor maker **Gemco Corp.** in Fremont, Calif., raised \$75 million last month from Global Crossing Ltd. and WorldCom Ventures, the venture capital arm of network services provider WorldCom Inc. The money is intended for the testing and marketing of a chip-based device that makes optical networks more efficient and less expensive to operate.

NETWORKING

San Francisco-based **Vipex Communications Inc.**, a provider of managed optical IP networks, closed a third funding round in January, raising \$200 million. The new investment brings the total equity Vipex has raised to \$291 million since the company's inception in July 1999.

ASPs

Avanta Inc., a San Francisco-based provider of an operating infrastructure for Internet-based business applications, received more than \$50 million in financing in February. The financing includes \$15 million in private funding by American Express Financial Corp. and more than \$34 million in additional private funding and equipment financing from Alliance Capital Management LP, HS Co-Investment Fund and others.

SOFTWARE

Pagoo Inc., a Dublin, Calif.-based provider of IP-based voice applications software and services, raised \$15 million in fourth-round funding from 3 Group PLC, mVVC Draper Fisher Jurvetson Fund I Inc. and Hummer Winblad Venture Partners.

MOBILE & WIRELESS

Winchester Networks Inc., a Tewksbury, Mass.-based information company for mobile wireless service providers, raised \$42 million in a second round of funding last month.



SALZMAN: VCs need "a diversified portfolio of venture investments."



GROSSER: "Everyone's looking to [be profitable] as soon as is practicable."

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Shared Pain

Now that **shared services** are out of their infancy, IT managers are discovering just how tough these organizations are to manage and grow. By Elizabeth M. Ferrarini

AFTER TWO YEARS OF FLYING solo, Houston-based Shell Services International (SSI), which offers shared services for IT, human resources and business consulting to other firms, is going back to being an internal shared services organization at Royal Dutch/Shell Group.

The reason for the switch? Because the oil and gas company's business units said "they weren't getting the attention they needed," says Dennis Wymore, SSI's manager of shared services consulting. "They wanted us to emphasize their needs more than those separate from the company. A shared services [unit] can't have one foot in two worlds, each with different market requirements."

SSI isn't alone in wrestling with shared services challenges. According to Dean Davison, an analyst at Meta Group Inc. in Los Angeles, IT shared services groups typically have to contend with many thorny issues, including the need to get internal IT staffers to understand how to price services, how to provide them and how to communicate their value to business units.

IT shared services groups are separate, accountable organizations set up to consolidate and market functions such as infrastructure or applications development uniformly to all business units. They must focus on meeting the business units' needs while at the same time recovering their costs through chargebacks to the business units.

Two exceptions to this industry-wide conundrum are the IT shared services units at Bristol-Myers Squibb Co. in New York. The two service groups have successfully carried out programs and procedures to meet the needs of the \$20 billion pharmaceutical firm's business.

Information Management (IM) Shared Services oversees Bristol-Myers' entire IT infrastructure, including 42,000 desktops, six global data centers, 2,000 production applications and a wide-area network. The Enterprise Systems and Processes group oversees the worldwide SAP enterprise resource planning system for the company's financial and manufacturing divisions.

Outsourcing Analysis

Conducting routine outsourcing analysis has helped IM Shared Services evaluate the market competitiveness of its internal services. Early last year, IM Shared Services participated in an outsourcing bid with eight other third-party services firms to support more than 23,000 of Bristol-Myers' North American desktops.

With Bristol-Myers' chief financial officer's support, the contract was awarded to IM Shared Services' internal desktop group, which hired a third party to service hardware.

"We offered a lower cost and guaranteed a higher level of service than the third-party bids. All of the business unit chief financial officers were kept informed during the bidding process,"

says Susan O'Day, vice president of IM Shared Services, who declined to comment on the value of the deal.

Benchmarking and meeting service levels have become important metrics in gauging the success of Bristol-Myers' two IT shared services organizations. "If you don't have these metrics, then how can you communicate how well you're doing internally?" asks Jack Cooper, the company's CIO.

The good news, he says, is that the company is meeting most of its service-level agreements, thanks in large part to its emphasis on benchmarking its costs and activities.

"We benchmark extensively in the areas of productivity, unit cost of operations and service delivery," Cooper says. "We've done very well in Garner Group's benchmark program."

Becoming Customer-Focused

Still, many shared services organizations have struggled to learn how to become more customer-focused, particularly those with IT professionals who had to be weaned from a service mentality. To get its IT department to become more customer-focused, BC Hydro hired several third-party training firms to work with staffers on everything from communications to

leadership skills, says John Ashurst, a shared services manager at the Vancouver, British Columbia-based electrical utility.

Effective marketing is another important skill set IT professionals must develop to bolster their shared services organizations. In 1999, the IT shared services organization of health insurance provider Blue Cross/Blue Shield of Florida in Jacksonville, Fla., made some cosmetic moves to become more customer-focused. For example, it formed a marketing group that pitches new network and desktop support programs to employees.

Another group, IT Systems Integration, evaluates hardware and software products for the company's IT environment and recommends those products to customers.

Nevertheless, the organization admittedly has a long way to go to fine-tune its customer service capabilities. "We have to do a better job of getting our customers to trust our product recommendations," says Larry Taylor, a systems administrator at Blue Cross/Blue Shield. "Customers still insist on buying what they want. Often, these products don't fit into our IT infrastructure."

But that could change. Taylor says Blue Cross' shared services group is pushing for a policy where it would have to approve any software before it could be loaded onto a server. Meanwhile, Taylor says the IT Systems Integration group is trying to get as close to business units as possible, often inviting department heads to meetings with vendors. ■

Ferrarini is a freelance writer in Arlington, Mass. Contact her at elizabethferrarini@yahoo.com.





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Dear Career Adviser:

I'm an experienced senior manager of professional services who got caught in the dot-com downdraft. To my amazement, in interviews for professional services management positions, interviewers ask questions regarding my years of C++ and Java programming rather than

questions about business management issues like making professional services profitable and my experience managing a profit and loss statement. Is this a temporary trend?

—OUT IN LEFT FIELD

Dear Left:

You'll need to cover two bases to land a professional services senior manager slot right now, says Joseph Sabrin, founder of eHire.com Inc., a consulting firm in New York. First, keep an active list of customers ready to buy from your potential employer. Second, have enough Java and C++ programming skills to show you can get the job done right. You need to show that you have both the management skills and the technical expertise to bring in business, manage the project and assure that it will be done on time, within budget and at the highest level of quality.

To get hired faster, you

might want to follow Sabrin's advice to stay flexible on compensation. "If you appear to be a bargain to a hiring manager, you'll get in the door faster," he says.

Dear Career Adviser:

I've been a programmer with Java, shell-scripting and Perl skills at an e-commerce company. I want to move into a more marketing-oriented role, potentially arranging partnerships among companies. What exactly do I need to know and how sales-oriented do I need to be?

—BIZDEV DAM

Dear BizDev:

Business development jobs certainly require a strong technical background since you'll need to evaluate whether two companies can truly link together in reseller, manufacturer or systems integration partnerships. Your

technical background will help you evaluate technologies, understand the fit, ascertain the resources required to integrate both sides and accurately estimate the ongoing support and training these deals require.

However, companies are crying for sales right now. This means that business development jobs are more often hard-wired into the sales — rather than the marketing — organizations and connect directly to revenue generation and quotas.

According to Joe Thomas, director of strategic alliances at Viador Inc. in Mountain View, Calif., unless you've been hiding considerable sales and business skills behind that developer's ré-

sumé, making the jump directly into a quota-carrying business development role isn't a recipe for success. After all, your counterparts at prospective partner companies already will have that business sense to use to their advantage while you'll still be climbing the learning curve.

A more appropriate first step to transition into a business development role, says Thomas, is to start out as a sales consultant or an integration engineer dedicated to supporting business development activities.

Dear Career Adviser:

You recently answered a question regarding turnaround and restart companies. How can I calibrate public and private companies, whether they're software development or consulting companies?

—NUMBERS TALK



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Dear Numbers:

Early-stage companies are typically willing to tell serious candidates the number of employees, the amount of capital raised, who the investors are, the milestones achieved and sought, and the company's plans to

raise future rounds of financing, says Perry Wu, venture partner at ComVentures, a Palo Alto, Calif.-based venture capital firm focusing on early-stage communications and Internet investments. With that, you can work backward to extrapolate the data you need.

Wu says to use \$100,000 per month, adjusted somewhat by location, to calculate the burn rate for every 10 employees. This should allow you to estimate the amount of money remaining from prior rounds of financing and the time the company has before it will need more money.

Even if the company is achieving its milestones, raising money can take three months or more, so be sure the company has enough runway to survive. According to Wu, consulting firms typically have lower burn rates if they staff up by project.

For public companies, Illinois State University business librarian Katherine M. Weir suggests checking out key statistics found in business publications, such as *Industry Norms and Key Business Ratios* by The Dun & Bradstreet Group in Murray Hill, N.J., which compares companies by industry segment and size. *Fortune* magazine's latest rankings also offer excellent data on today's most profitable companies and industries. ▶

EXECUTIVE TRACK

Du Pont Pharmaceuticals Co. in Wilmington, Del., last month appointed Ronald E. Morgan as its CIO. Morgan most recently served as CIO at PershingFirst.com. Prior to that, he spent five years at World Health Inc. in Dublin, Ohio, where he was responsible for information systems and data center activity for its distribution division.

Carl M. Lambert III last month was named CIO at Houston-based Enterprise Products Partners LP, where he will manage the company's information systems and technology resources. He previously served as vice president of information systems at Coastal Merchant Energy LP in Houston. Enterprise Products is an integrated services provider

for both energy producers and consumers.

The Goodyear Tire & Rubber Co. in Akron, Ohio, last month tapped Steve Bucken as director of global infrastructure. In this role, Bucken will be responsible for global integration of Goodyear's IT systems. Prior to this appointment, Bucken was director of distributed systems at FedEx Corp. in Memphis.

Gordon Kruttschnitt last month was named chief operating officer and CIO at the Internet Trade Finance Exchange (ITFE). Previously, Kruttschnitt was a consultant at Cap Gemini Ernst & Young, where he was responsible for new business and account management in the ar-

ea of e-commerce, advanced technologies and financial services. New York-based ITFE is an online market for global trade finance.

Hub International Ltd., an international insurance brokerage in Toronto, last month announced the appointment of Darlene J. Jucos as CIO and Deborah K. Wilson as chief technology officer. Jucos will oversee Hub International's e-commerce operations, identify new business opportunities and oversee the integration of emerging technologies. Wilson will be responsible for global technology strategies, with an emphasis on new and emerging technologies, as well as process redesign in operations.

TradeMatic Inc., an Irving, Texas-based capital and indirect goods marketplace, last month announced the appointment of Robert Klehoda

as senior vice president and chief financial officer. Before joining TradeMatic, Klehoda was CFO at WorldPoint Logistics Inc., a transportation services provider in Bellevue, Wash.

Gary Mager was recently named executive vice president of database marketing and analysis at DataCo LLC, a Des Plaines, Ill.-based market research firm. Mager comes from BEPA Partnership Marketing Group in Louisville, Ky., where he was vice president of database marketing and analysis.

Arny King was recently appointed CIO at MJB Wood Group Inc. in Irving, Texas. King has been at the company since 1990, holding a variety of positions in operations and corporate planning. As CIO, she is responsible for overseeing MJB's information strategy, architecture

and enterprise resources planning development.

Chari Roach recently joined ONE Systems Corp. as the company's CIO. ONE is a San Jose-based provider of all-optical telecommunications equipment for metropolitan and regional networks. Roach previously worked at Sunbeam, a based Oculentum Aerospace Corp., where she served as vice president of IT for seven years.

Vincent T. Taylor earlier this month was named CIO of L-S Communications Corp., a New York-based maker of specialized communications gear. In this newly created position, Taylor will oversee business and technical systems, e-commerce and telecommunications. Taylor has served in various roles within L-S and its predecessor companies for more than 23 years.



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FAB FOUR ONLINE

The Beatles' official Web site at Beatles.com could offer lessons to developers at mainstream businesses that want to push their Web sites beyond HTML and simple graphics content in the interest of luring employees and customers, or improving the cachet of the company name. ■ 52

SECURITY JOURNAL

As viruses continue to creep into his network, security manager Vince Tuesday ponders why today's antivirus tools reduce but don't eradicate this costly problem. He's hoping readers will offer some advice from their own experiences. ■ 54

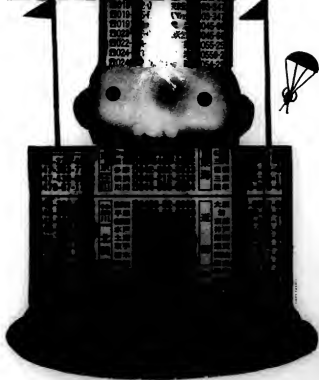
LOCATING CUSTOMERS

Some limited location services are already here, but as 911 services are rolled out to cell phones in the coming years, many companies plan to try to leverage that technology to direct cell phone and handheld users to nearby services. The process will be complex, given the FCC rules, privacy concerns, standardization worries and more. ■ 58

QUICKSTUDY

Intrusion-detection systems are designed to let you know when a system or network is being used inappropriately or without authorization. Find out more about how they work. ■ 62

TECHNOLOGY



BUILT-IN IP VULNERABILITIES

THE FEATURES THAT MAKE THE INTERNET WORK are also the ones that sometimes allow hackers to shut parts of it down. Most networks are protected against high-level hacks but are missing the easy counters that would stop basic, yet devastating, attacks that use the built-in weaknesses of the Internet Protocol itself. Those vulnerabilities exist because TCP/IP hasn't changed much since the days when it was only used by a relatively small, trusting community of scientists and engineers.

60

All You Need Is Bandwidth

The Beatles.com Web site could provide lessons for traditional business sites

BY MATT HAMBLIN

GIVEN THE Fab Four's legendary reputation, how were developers able to build an official Web site that could do justice to the Beatles name?

Answer: With a little help from their friends — not to mention industry-proven development tools and some custom software.

Officials at EMI Records Ltd. and Apple Corps Ltd. in London timed the launch of www.beatles.com last November to coincide with the release of "The Beatles I" CD, a compilation of 27 chart-topping Beatles singles.

The result is a site built with state-of-the-art tools that engages users with quick navigation, many interactive components, colorful graphics, sound and even games with live chat.

The site could offer lessons to developers of mainstream businesses that want to push their Web sites beyond HTML and simple graphics content to lure employees and customers or improve the cachet of the company name, analysts said.

Even the way the Beatles.com site was built could offer a lesson in orchestrating a crash development process that brings together a variety of styles and content. Fifteen Web development companies were chosen to build the site, said Anthony Cauchi, senior new media manager at EMI as the site was being built and now head of development at Web marketing and production firm Outside Line in London. Given that the project needed to be done in six months, "this approach lets you develop a lot of things at once, which is very handy," he said.

The 15 developers also employed different graphic and interactive styles. "The Beat-

les' music and appeal stretches so far around the world, we felt the Web site needed to reflect this variety," Cauchi explained.

Like many sites on the Web today, Beatles.com has both low-tech and high-tech entry points to accommodate the different bandwidth connections and browsers of end users.

The high-tech entrance requires Flash 5 and Shockwave 8 multimedia players, both plug-ins from Macromedia Inc. in San Francisco. High-tech access is possible with a 56K bit/sec. dial-up modem and allows users to play games and take virtual tours — features missing from the low-tech HTML version.

High-tech users view moving graphical images on the site that are packaged with dozens of streaming video and audio clips, original animation and interactive online games. All users can also see original record labels and studio production notes for each song on 27 different pages.

One virtual reality feature allows an Apple QuickTime VR tour of Studio 2, where the Beatles recorded many hit songs. Users can stand where the Fab Four stood and played and see the other musicians in 1963-era black-and-white photos.

Another feature allows a user to pan around a 3-D animated city scene with the Beatles performing "Get Back" atop the roof of the Saville Row home of Apple Records on Jan. 30, 1969. Color photos of the Beatles from that impromptu live concert, which was their last, are combined with the actual song, street sounds and animation of the band.

In the Help! game on the site, four players assume the characters of Paul, John, Ringo and George. Using text chat over the Web, they navigate together

and outdoor scenes to find three guitars and a drum. If they avoid being eaten by the Blue Meanies (the animated monsters first seen in the Beatles' Yellow Submarine movie), the players enter a stage and play a Beatles song piped in from a server before a live Web audience. Up to 40 people can simultaneously play Help!, a limit that was quickly reached when the game was unveiled.

Cauchi said the site would have had to be built differently a year ago, because the Macro-

media software authoring tools today are more efficient to use than earlier versions. Analysts predict that animations will be catapulted even further ahead with 3-D streaming animation rendering technology that's under development through the combined efforts of Macromedia, Intel Corp. and NetView Technologies Inc. in Cary, N.C.

"We used Flash 5 and Shockwave 8 to the limit. That's why it was a good time to bring the Beatles to the Web because the Web medium is reaching mass market and the technology is getting very exciting," Cauchi said.

While the games and chat functions on Beatles.com may not seem important to mainstream businesses, the site's

navigation with animated objects "is definitely where businesses on the Web need to go," said Rikki Kirzner, an analyst at IDC in Framingham, Mass.

Businesses selling products on the Web will want to take advantage of development tools to help customers rotate products, walk through the products' features and explore how they work, Kirzner said.

For example, NetView Technologies specializes in providing businesses with the ability to show their products on Web sites from various viewpoints with walk-throughs users can navigate, she said.

Several consumer automobile sites already let users rotate a camera view of the interior of a new car model using the same QuickTime VR technology Beatles.com employs for a Studio 2 tour.

The Beatles.com project wasn't without technical obstacles. One difficulty developers faced was sharing hundreds of Beatles images taken from different time periods across 27 different templates for the 27 song pages without a centralized database, Cauchi said.

The inability to share images over a common database is typical of problems for big retailers and manufacturers selling products to consumers and other businesses over the Web, several analysts said.

Web developer Dan Sayers at London-based Kleber developed the Help! game with colleague Hawkins Bright Roberts in approximately six months' time. They primarily used Shockwave and Flash, but Sayers found that he had to create a custom tool to make the chat functionality work when the Shockwave Multi-user Server couldn't do the job.

The use of online games and chat functionality like those in the Help! game is controversial on mainstream business sites. There's limited value in posting games or chat rooms on a business site, Kirzner explained, "unless you are trying to appeal to teenagers."

But some traditional businesses say games help bolster the image and visibility of the company brand.

For example, the Web site for Merck & Co. in Whitehouse Station, N.J., poses anatomy,



D On the "Get Back" page, users can pan around a 3-D animated city scene of the Beatles performing "Get Back" atop the roof of the Saville Row home of Apple Records on Jan. 30, 1969. Color photos of the Beatles from that impromptu live concert, which was their last, are combined with the actual song, street sounds and animation of the band playing.

2 On the "Help!" page, users can play an animated game. Four players assume the characters of Paul, John, George and Ringo. Using text chat over the Web, they navigate together through animated rooms and outdoor scenes to find three guitars and a drum. If they successfully avoid being eaten by the Blue Meanies, the players enter a stage and play a Beatles song piped in from a server before a live Web audience.

pharmaceutical and other medical questions in an online knowledge test and offers winners free T-shirts. Moving animations are also used to show basic anatomy, such as how the heart functions.

"I think Merck makes good use of games and information archives to inform their potential clientele and make evident their expertise," said Scott Preotice, director of Web development at Montreal Media Corp., who has worked with many large corporations. "A good game creates a relationship of trust between the user and the company. It also helps to create community."

Not a lot of games and chat are used on traditional business sites, but they are starting to show up, especially to attract new employees or explain a business process, said Kipp Lynch, director of user experience at NerveWire Inc., a Newton, Mass.-based consultancy

for business-to-business Web development. "Games and interactions can help if you are trying to attract cutting-edge recruits for your company and want to create the perception of 'We're not some old stodgy company,'" Lynch said.

"Yes, there's a place for games on traditional business sites, but it depends on how they are used and targeted," added Billy Pidgeon, an analyst at Jupiter Media Metrics in New York. "Developers may use games to build brand recognition, especially if you have a young audience or a fun product like food."

But, Pidgeon warned, "the real danger is that people might go to your site and just play the game and not get the brand message. And while the new development tools are cheap and easy to use, they can cause a user's browser to crash... which can drive those users away." ■

Sending Help! In a Hurry

Web developer **DAN SAYERS** built the *Beetles.com* interactive Help! game in six months with the assistance of a colleague at Web development firm Kiebar. The game allows as many as 40 people to chat and play in real time and is found under the "Help!" icon page on www.beetles.com and at www.helpgame.net. Sayers spoke with Computerworld's Matt Humblen about the challenges.

Q: How did the development process get?

A: There were no problems in development, just a lot of hard work over six months. Probably the biggest blind alley or rethink was deciding to code my own chat server instead of using Macromedia's... Shockwave Multi-user Server. It doesn't, unfortunately, have the facility to manipulate

information on the server side, which turned out to be vital for the project.

Q: How was the chat server built?

A: I had already been working on simple relay chat engines in Perl, so coding my own server wasn't as much of a leap as it might sound. But in fact, some problems later.

We were unable to stress-test my code much before it went live Nov. 13. We had to rewrite a lot of the code on the fly when it went up.

As soon as it went live, it crashed almost instantly from all the people trying to get into it. The process of fixing the live server game was one of the most intense periods of my life—stressful and exhilarating, looking for bugs, patching at the crashes, getting feedback. Even people inside the game helped me via chat with improvements.

Q: How did you get involved in the first place?

A: I had no real-world experience making a working chat server. My experience previously was coding Perl and [Personal Home Page] with databases for [Common Gateway Interface] applications, plus some JavaScript. I don't think Kiebar would have even considered taking on such a

job if it hadn't been for the client. Just the idea of doing something innovative for the *Beetles*' first official Web site seemed too good an opportunity to be missed.



SAYERS: Being live with the site was "stressful and exhilarating."

Q: What were the technical and content criteria from the *Beetles*' promoters about your part of

the Web site?

A: The only brief was very wide, really. They just said they wanted people to do the most cool and impressive things they could.

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Antivirus Safety Net Has Too Many Holes

Despite all-out efforts to eradicate them, viruses remain this security manager's costliest problem

BY VINCE TUESDAY

THE LARGEST RISK my company faces for downtime and lost revenue comes from virus infections.

Viruses used to be a nagging little problem that affected only those who trafficked in copyright-infringing software on floppies. Then Microsoft decided that documents should also be virtual machines that run macros, and the virus world became a lot more exciting. Just when we got our heads around that, Microsoft decided that e-mail clients should also be able to run scripts and that our address books should be open to all software.

There are thousands of viruses, each of them trying to spread, and many of them leaving damaged data and public relations woes in their wake.

We run the best anti-virus defenses money can buy. We update our software every time the vendors release new patches. We spend a great deal of effort on the problem, and yet we still suffer occasional virus infections. Why?

Chinks in the Armor

First of all, we must continue to do business. Our development teams need to share code. Our sales teams have to send documents and presentations. Our finance teams have to share spreadsheets and databases. These days, all these files can contain viruses.

I remember recruiting new staff to address virus issues and interviewing a string of ex-military and intelligence types. Short haircut after short haircut explained to me that the way to eradicate the virus threat was simply to remove all floppy drives and CD-ROMs from all machines, disable Internet access and discipline anyone caught with a virus on their machine. We could never get away with that.

The business winners we derive

from allowing documents and spreadsheets in and out of our environment far outweigh the downside of the rare virus epidemic that overloads the e-mail system or of the requirement to go to backups to recover some corrupt files after an infection.

Of course, we work to reduce the risk as much as we can. But best efforts don't give us 100% protection: every system has a chink in its armor. Once in a while, a new virus finds a way through our lines of defense.

In the good old days, it would take many months for a new virus to become a global issue, leaving plenty of time for virus updates. Today, a hacker can execute a few mouse clicks using a virus generator tool kit and make headlines on CNN the same day.

In response, vendors have developed faster ways to deploy update signatures. Most are now Web-enabled with automatic updates and central management consoles. Their deployment packages, which push protection onto user desktops and servers, could teach intrusion-detection system (IDS) vendors a thing or two.

Most IDS deployments require you to visit each machine in turn. That's fine when you have five machines in a demilitarized zone, but what if you have more than 4,000? Even with these improved tools, it still takes a lot of effort to deploy a new signature to every desktop. If the machine is turned off or the user has disabled the virus checker, then you're still exposed.

As the number of virus signatures grows, the desktop virus scanner runs slower and slower, tempting users to disable it. Vendors have tried to work around this by limiting what they scan. They usually just look for program files — the .exe, .com, .vbs and .doc files known to contain viruses. This means that, even with all the latest signatures loaded and the desktop antivirus software enabled, infected files can still get

through undetected. So we can't trust the desktop to be timely or even there at all. We have to have gateway protection as well.

By forcing the entire Web and e-mail content in and out of the company through gateways, we can check it all in one place. This used to be foolproof: Keep it up-to-date and you'd never have a virus. People even began to wonder if we needed desktop protection at all, with such good border protection.

Then, like good security people, we improved the confidentiality of our users. Shopping online? Use a Secure Sockets Layer encrypted session to protect your credit card from prying eyes. Sadly, our gateway protection is a type of prying eye. If users encrypt, we can see nothing and can do nothing to help them keep viruses at bay.

The same problem affects the use of Web-mail services like Hotmail. We encourage staff to use these to reduce the risk of company liability. If they are going to say something foolish, we prefer that our company name not be associated with it. While our e-mail servers have antivirus software installed, many Web-mail providers don't. If they use a decent Web-mail provider, like Hotmail, the content is protected, so the virus gets through our proxy Web checking. Microsoft doesn't bother to encrypt the session containing your e-mail on Hotmail. That's bad for your privacy but great for our ability to check for viruses.

Viruses also have a nasty habit of coming back to bite you after you think you have cleaned them out. After our last xbs infection, we cleaned all the Windows NT file servers, and yet the virus was still active. It had sneaked onto some OpenVMS Pathworks and Unix Sunba file servers. It's very hard to get decent antivirus software for these operating systems because they rarely have viruses of their own.

Once all that was cleaned out, the virus was still hiding on our backup tapes. When we restored the files, we found ourselves introducing a threat back into the environment. The worst time to suffer a virus problem is when things are bad enough that you need to go to backups.

Any attempt to reduce the risk of viruses also decreases the ease and functionality for users. Luckily, hardly anyone uses xbs files for business pur-

THIS WEEK'S GLOSSARY

Virus generation tool kit: Software available on the Internet that allows low-skilled wannabe virus writers to create viruses. One of these tool kits, called Visual Basic Script Worm Generator, was used to create the recent Anna Kournikova virus.

Secure Sockets Layer: SSL consists of a set of cryptographic protocols that use public-key technology to authenticate the site you are visiting and encrypt the data stream to keep the data transmitted confidential and unmodified.

Morris worm: A program written by Morris Morris, a student at Cornell University in Ithaca, N.Y., that spread across the Internet in November 1988 and crippled large parts of it.

Melissa virus: This lurches to work when a user opens an infected Microsoft Word 8 or Word 9 document. It prompts Microsoft Corp.'s Outlook e-mail program to send an infected document to the first 50 addresses in a victim's address book.

Love Bug: A Visual Basic script worm used as an attachment. The message's subject contains "Love You." It propagates itself to all addresses in a victim's address book.

LINKS:

www.jacobmiller.com: Dublin-based Hush Communications is a Web-mail company that takes security seriously — perhaps even a little too seriously. It's for paranoid people like me.

www.mysite.com/melissa.cfm: Can't tell your AOL/Outlook from your Love Bug? Visit www.mysite.com. Rob Rosenberg's virus myths home page will help you separate fact from fiction.

poses within our company, so we have been able to disable the running of these files on desktops. This makes us immune to any variations of the Love Bug virus, but it doesn't mean we feel safe. So far, the viruses making global headlines haven't carried significant payloads, but everyone working in this field can imagine an Armageddon virus that would make the famous Morris worm look like a temper tantrum. Viruses have become a fact of modern computing life, and they don't look like they're going away anytime soon.

Do you have a trick that saved you from viral nightmares? I welcome your thoughts in the Security Manager's Journal forum at www.computerworld.com. ■



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Rack 'Em Up!

An innovative approach to PC design and deployment simultaneously improves manageability, helps unclutter the office and turns your network inside out. By Russell Kay

REMEMBER the thin-client/fat-client debate of a few years ago? Do you recall the underwhelming appearance of devices such as Net PCs, network PCs and diskless workstations? Those machines often cost more than PCs while delivering less capability, and they generally bombed in the marketplace.

Much of the impetus for the thin-client model was its promise to solve one of the persistent headaches IT and help desk staffers face: having to travel to a user's office or desk to troubleshoot a PC problem.

Plenty of vendors have tried to resolve this by offering a variety of remote-management software products, but the tools really only work when there's a software problem. To repair, replace or upgrade a physical component, you still need to trek out to the user.

A small company in Austin, Texas, looked at this problem differently and came up with an innovative solution.

ClearCube Technology Inc. created its C3 architecture, which comprises an entire Wintel PC on a single card (called a CPU Blade) that's designed to fit on edge into a 5.25-in. high rack-mountable enclosure (called the Cage) that holds eight Blades. A typical 6-ft. by 19-in. rack can hold a dozen such Cages for a total of 96 PCs.

LEDs on the front panel indicate power and hard-drive status for each PC, while a Category 5 Ethernet cable on the back panel goes out to the user's desk, connecting to a small black box (called the C/Port) that contains connectors for the user's monitor, keyboard, mouse and serial port. The serial port is handy for personal digital assistants. Another C/Port model primarily uses Universal Serial Bus (USB) connectors.

ClearCube has several patents in the area of data transfer over copper wire, and its technologies allow all the needed signals, including video and USB, to be extended as far

as 200 meters from the Blade. Each user still has a dedicated CPU, RAM, network interface card, hard drive or drives, and graphics board on his Blade.

One of the interesting consequences of ClearCube's architecture is that it really does turn your network inside out. A typical corporate LAN has a bunch of servers in a controlled environment that connect to the outside world on one side and to all the corporate users on the other side. Long cables carry network traffic to and from the servers.

ClearCube's design, however, puts the PCs in the same room as the servers. To hook them up to the LAN, all that's needed is a short cable for each PC. The long cable that used to be the user's network connection is now the bridge between the user's desk and his PC. Clever engineering allows an analog video signal to be carried over three of the cable's four twisted wire pairs, while all other I/O travels through the fourth pair.

Why Centralize?

Although it seems strange at first, this arrangement has several advantages. It keeps PCs physically accessible to IT staffers at all times and gives IT the ability to back up user PCs. The Blades have jumpers on them that allow IT staff to disable some components or capabilities, such as the use of re-

movable storage devices at a user's location, to prevent him from installing unauthorized software or removing proprietary data, for example.

When the user doesn't need a computer tower nearby, he may be able to get by with a smaller workspace. This can be especially important in densely populated call centers, customer service centers and support operations, as it also removes the heat and fan noise of PCs from those environments. Not having the computer handy also means components inside the box can't go home with a disoriented employee.

Finally, what happens when a user's PC crashes or suffers a hardware failure? With ClearCube's architecture, as long as data is stored on a network server, an administrator can quickly switch that user to a spare Blade without having to directly touch either the failed or spare PCs.

The ClearCube approach to PCs will be slightly more expensive than installing standard PCs. The Blades are reasonably priced, compared with the cost of standard PCs, but IT will also have to buy Cages, racks and C/Ports. Still, the improved security, reliability and ability to swap in spare PCs should together reduce the total cost of ownership. For more information, visit www.clearcube.com.



THIS RACK can hold as many as 96 PCs.



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Need to Find A Customer?

EVERYONE HAS HEARD this location-technology marketing vision: You pass a coffee shop, and your cell phone or wireless handheld alerts you to rush inside to get 25 cents off a luscious mocha latte.

Businesses could buy autolocation services that would let lost executives click on a million-dollar client's name and get driving directions to his office; other services could help construction companies keep tabs on heavy equipment or enable caregivers to track anything from pets to patients with Alzheimer's disease.

Some shipping and car companies have been using private automatic-location networks for years. Detroit-

based General Motors Corp.'s OnStar subsidiary, for example, has offered a location service in cars over Verizon Wireless's analog network since 1997. The service now boasts 1 million subscribers, with several automobile models equipped with OnStar.

Some services that are in development would be available over public wireless networks and the Internet. But several analysts warn that we're perhaps three years away from seeing generally available autolocation systems operated by wireless public carriers that would allow companies to push ads or services to devices based on users' locations.

Why is it so far off? Partly because technology standards are still develop-

ing, and the user interfaces on handheld devices are extremely limited, IT managers and analysts say.

Launching a location-based service means not only adapting internal networks and applications, but also negotiating with carriers for everything from connection costs and privacy policies to spam prevention.

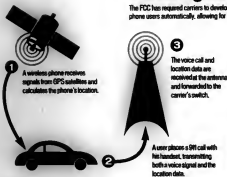
Also important is the placement of a logo on the menu screen of the wireless service so customers can easily find it. Screen placement is the kind of detail that sounds trivial to developers but is vital for a service to reach a large pool of road warriors. Users generally refuse to punch in long Web addresses on awkward cell phone keypads, says Donald Black, director of e-commerce

at the United NetWorks e-commerce and wireless division of air carrier UAL Corp. in Elk Grove Village, Ill.

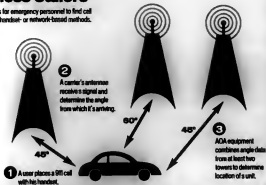
Even though the reality of widespread location services is far off, the market buzz over location-based services has begun because dozens of private companies want to build applications atop Enhanced 911 capabilities, a set of emergency autolocation services that the Federal Communications Commission has ordered carriers to begin offering as of Oct. 1. Full rollout isn't required until Dec. 31, 2005, but analyst Alan Reiter at Wireless Internet & Mobile Computing in Chevy Chase, Md., predicts that all the major wireless carriers will ask for extensions to the October deadline.

Locating Wireless Callers

The FCC has required carriers to develop ways for emergency personnel to find cell phone users automatically, allowing for either handset- or network-based methods.



Handset location method: One example of handset-based location technology uses the GPS network and GPS-receiving circuitry inside the handset to establish the origin of a 911 call. The GPS electronics determine the phone's position in conjunction with several GPS satellites, and the information is forwarded to the carrier's switch and then to public safety personnel.



Network-based location method: The network-based solutions don't require satellites but rely on the handset's position in relation to cellular towers. This can be based on the angle from at least two towers, the time the signal arrived at one tower compared with the next one or the pattern of signals received by towers, which are compared against a database of signal patterns.

The FCC is pushing carriers to enhance their ability to find cell phone users, but providers and their potential customers question whether sophisticated autolocation services are practical or even worthwhile.

By Matt Hamblen and Bob Brewin

Current cell phone networks can locate a user based on the closest cell phone tower, to within a distance ranging from several hundred feet to miles. The FCC mandates are designed to bring emergency crews much closer to a person in need, although private application providers are unsure how important this precision will be. For example, SnapTrack Inc., a division of Qualcomm Inc. in San Diego, is perfecting technology to locate users within 2 meters using Global Positioning System (GPS) satellites as well as network-based triangulation. GPS chips, meanwhile, have shrunk to the size of postage stamps, which could make it that much easier to build precise location sensors into phones, cameras and other devices.

Despite the difficulties, the payback

for such services could be attractive. A market forecast from research firm IDC in Framingham, Mass., predicts that U.S. revenues for location services will be at \$4.8 billion by the end of 2004, with 16 million subscribers. Gartner's In-Stat Group in Newton, Mass., is more conservative, predicting \$3.8 billion in worldwide revenues by 2005.

Working applications such as OnStar show not only that the services could work, but also that at least some consumers are interested, says Ken Delaney, an analyst at Gartner Inc. in Stamford, Conn.

It's so early in the development of location-based services that carriers really haven't set charges for advertisers or service providers that want users' location data. Analysts say part of the reason is that how wireless carriers don't know or won't say how much it will cost to put in a network-based or handset-based location service.

It's also unclear which cost models would work. Some end users might pay for map-based location and directional services, for example. Others might demand free service but agree to view a certain number of ads aimed at their specific interests and age groups, advertisers and analysts say.

"If location services are priced too high, I wouldn't want them," says John Siewierski, CEO of Boulder, Colo.-based GearDirect.com LLC, an online and brick-and-mortar sporting goods retailer that just finished a wireless advertising trial with 1,000 users. However, using location services could be valuable for GearDirect if the company were able to send an advertisement for skiing or biking equipment to a user who was just about to leave for an outing in the wilderness, for example.

"Users could see that our prices were definitely less than buying gear in the mountains," where you end up paying a higher price, he says.

Carriers are also unsure how many location-service providers would pay to automatically locate their customers,

rather than just let the wireless customers identify their own locations.

Morgan Littlefield, special events manager for Major League Baseball in New York, has used free software supported by ad revenue on her Palm V handheld for six months. As she travels, she uses it to help her get around and locate restaurants and services. The software is from Vindigo Inc. in New York, which has about 400,000 registered users.

Littlefield says she isn't sure she would ever want Vindigo to "find" her, especially since the service is good at finding subway stops and nearby restaurants when she plugs in a city name and a cross street manually.

"Autolocation is not the Holy Grail of location," says David Joerg, president of Vindigo. He says that so far, his service has flourished mostly without autolocation.

Food.com Inc. in San Francisco has offered a location service on its wired Web site for four years. The service lets customers plug in their locations and then offers a list of restaurants that are part of its takeout-food network. The company will add wireless and location services within the next two to four years, says Chief Technology Officer Steven Reiss, adding that he's in no rush.

Tom Stockham, president of emerging markets at Ticketmaster Corp. in Los Angeles, says providing autolocation services to movie ticket buyers to help them find nearby theaters is fine, but it raises a concern about how users will pay for and receive an easily recognizable ticket.

"How does somebody receive confirmation they got a ticket? that a box office will accept? Stockham asks. "Autolocation will become meaningful and useful eventually, but it won't be in the next nine months."

Privacy and Government

Public interest groups and some lawmakers are already worried about privacy with autolocation (Computerworld.com, Feb. 13, 2000). Several bills affecting location privacy have been introduced in Congress, and the Federal Trade Commission has held workshops to hear concerns.

"Location is the hot privacy issue of the new millennium," says David Sobel, a lawyer at the Electronic Privacy Information Center in Washington.

Sridhar Ranganathan, general manager of Yahoo! Everywhere, a division of Yahoo! Inc. in Santa Clara, Calif., says he believes that letting customers input their own locations will help overcome privacy worries. By letting them give up that information each time they need the service, rather than having their locations monitored automatically, customers feel they have more control, he says.

Glossary

Angle of arrival (AOA): A system that calculates the angles at which a signal arrives at two base stations from a handset, using triangulation to find location. AOA works poorly in urban settings, where buildings interrupt signals.

Enhanced observed time difference (EOTD): A network-based system for finding handsets. Transceivers send a signal to the handset, which collects timing information on the incoming signal and transmits the data back. The network then calculates the distance of the handset from each tower and uses triangulation to determine location.

Time difference of arrival (TDOA): A network system that involves special receivers on cell towers that calculate the time it takes a signal to arrive. Three towers must receive the signal to calculate the difference in arrival time of the signal at each tower to determine the handset's position through triangulation.

Global Positioning System (GPS): The best-known location system. It requires GPS satellites orbiting earth to communicate with GPS chips in handsets. GPS receivers trouble in urban settings, but carriers can enhance it with network technology. A GPS handset requires a second antenna.

Location pattern matching (LPM): A network system that requires only one cell tower. The tower takes the signal it receives from a handset and compares it against a database of the previously gathered signal fingerprints that very depending on the terrain. Carriers need to update the frequency of signals as buildings are built in a city.

Many corporations investigating autolocation are relying on outsourcing firms to set up their location-based services because of the complexities of dealing with privacy concerns, multiple carriers, probable FCC delays in implementation, and conflicting or insufficient technology standards.

Coca-Cola Co. in Atlanta launched a location service last year with Go2 Systems Inc. in Irvine, Calif. "We're in the soft drink business, not the software business," explains Coca-Cola spokeswoman Kirsten Witt.

Gartner's Delaney says outsourcing can help because carriers have "not put standards on a high enough level and only care about what works or doesn't work in their system."

Meanwhile, developers whose applications have to work with several systems may prefer to hire outsource to tackle interoperability on networks that aren't yet built, whose standards aren't yet set and whose goals are still, well, up in the air. ■



Insecurity

The features that make the Net work are also the ones that sometimes allow hackers to shut parts of it down. Most networks are protected against high-level hacks but are missing the easy counters that would stop basic, but devastating, attacks using the built-in weaknesses of IP itself. By Deborah Radcliff

STOLEN CREDIT CARD numbers, hacked federal computer systems and other high-profile online assaults have put many users on their guards and focused the attention of security managers on high-level intrusion-detection systems, chains of firewalls and other high-level defenses. But many forget that, no matter how hard they try to secure a site, vulnerabilities built into the fabric of the Internet still leave them at risk—even though measures to shut down the most glaringly common vulnerabilities are easily available.

Simple functions like the ability to request a connection between two machines can create openings that are to blame in about 15% of the attacks that are reported each year, says Fred Baker, chairman of the Internet Engineering Task Force. That's because TCP/IP hasn't changed much since the days of its acceptance as the Arpanet transport protocol.

"[Internet Protocol] was originally written among a cohesive community that had significant internal trust. By default, IP applications assume they should trust people," Baker says.

Denial-of-service and data hijacking attacks using functions of TCP/IP can be prevented using security functions that can be turned on in most server operating systems, filters built into routers or a new version of IP (Version 6), which is a standard for the public-key infrastructure IPsec protocol.

But those security measures are often ignored.

Take the TCP attack that was "rediscovered" in March by security services firm Guardent Inc. in Waltham, Mass. Guardent researchers figured out a new way to exploit an old problem with TCP: the ability of a hacker to hijack a session if he can guess the random initial sequence number (ISN) that two machines use to start a sequence of packets.

Once an attacker guesses the ISN, he can redirect the packets or inject anything into the data stream. Software vendors were thought to have averted this problem with random packet sequence generators. Turns out those random sequences aren't so random after all and actually contain patterns that make the ISN easy to guess, says Jerry Brady, vice president of research and development at Guardent.

Another ancient exploit, spoofing IP addresses, is also common today, says Paul Raines, head of global information risk management at Barclays Capital, an investment bank in New York.

"Classic TCPIP attacks such as IP spoofing and denial-of-service attacks using buffer overflows are still out there," he says. "Take the [distributed denial-of-service] attack executed by Mafia Boy last year. He planted Trojan horses in unsuspecting servers. Those servers then flooded e-commerce sites with a load of service requests that contained bogus-source IP addresses.

The e-commerce sites couldn't keep up. That caused many of their servers to crash."


Non-IP attacks typically go after vulnerable ports, services in server software or functions like address books and automailers.

Traditional attacks against TCP/IP fall into two categories: denial of service and data hijacking, says Frank Heidt, managing security architect at security consulting firm @stake Inc. in Cambridge, Mass.

In the 1990s, dozens of types of attacks against TCP/IP ravaged the Arpanet. Of those that still exist today, the most common include:

1. Smurf attacks: A denial-of-service attack named after the colorful cartoon characters, a smurf attack takes advantage of the ability in most servers to broadcast requests to many other machines at once. The attacker forges a legitimate IP address and then broadcasts requests for a reply to the address of the victim to all the servers on the network. Because the packets appear to be legitimate requests from a known address, all systems in the amplifying network reply to that address, overwhelming the legitimate machine and causing denial of service.

2. SYN Floods: denial-of-service attacks in which the attacker uses spoofed IP addresses to send multiple connection (SYN) requests to the target. The target system then sends acknowledgements and waits for replies.



Because the forged IP addresses don't belong to any actual machine, there is no reply, leaving connections open and blocking legitimate traffic.

3. Source route manipulation: a denial-of-service and data-hijacking attack in which an attacker manipulates routing table entries (usually at the border router) to redirect traffic intended for one site to a different one, where the information can be intercepted, or to nowhere.

Blocking and Filtering

Disabling "broadcast" at the border router can block Smurf attacks. Tuning out incomplete SYN requests at intervals of three seconds or less usually wards off SYN floods. And IP route packet filtering can catch hijacking attempts. In fact, filtering is what TCP/IP protections are all about, say IT professionals.

For example, many victims of recent distributed denial-of-service attacks are now filtering traffic at their Internet service providers rather than waiting for the flood to hit their own machines. Some have also configured their operating systems to time out SYN requests faster and are changing the IP address of a server under a denial-of-service attack to move it out of harm's way, Raines says.

Bill Hancock, chief security officer at Exodus Communications Inc. in Santa Clara, Calif., says that, in addition to firewalls and intrusion detection, his organization uses the following filtering techniques:

- Edge-router filters to block traffic from bogus addresses or SYN attacks at the edge of the network.
- Rate-limiting filters to stop incoming connection requests to protect against high volume attacks.
- Traffic-flow analysis to detect inbound connections that match known attacks or to backtrack to source for prosecution.
- Traffic and Domain Name System (DNS) redirection to redirect attacks coming at them via high speed hardware aimed at the DNS server.
- Host-based firewalls to protect against direct denial-of-service attacks by filtering out known types of attacks.

But organizations like Hancock's are the exception rather than the norm.

"These security features aren't in the default configuration. IT people don't turn them on because they're too busy ... or they just don't know about them," says Ian Poynter, president of Jerboa Inc., a security services firm in Cambridge, Mass. "Or they're afraid filtering is going to slow them down. But these features don't create much of a performance hit."

For example, Cisco Systems Inc.'s routers contain a feature called unicast reverse-path forwarding check, a re-

verse IP lookup capability that has been part of Cisco's Internetworking Operating System (IOS) since the release of Version 10 three years ago. The function can detect forged traffic by checking upstream routing tables to see if packets are coming from the IP address they claim.

Barbara Fraser, a consulting engineer at Cisco, says that while these technologies are almost ubiquitous, "People just aren't using them."

Concerns over performance problems are also to blame for the new threat to ISN guessing, according to Brady. The vendor community had a chance in 1996 to adopt a more robust random sequence generator, penned in a standards modification titled RFC2946 by Steve Bellovin, a fellow at AT&T Labs in Florham Park, N.J. But "most vendors didn't want to move to RFC2946 because it was more costly in terms of CPU usage," says Brady.

Also being widely ignored is IPsec, a subset of IPv6, which is designed to use public keys to authenticate machines before making a connection, says Baker. These enhanced security features, both of which were published in 1998, would help solve many of the TCP/IP security problems, including the issue of ISN guessing, say Baker and Brady.

"Everybody [in the vendor community] has IPsec on its road map, but nothing's available today," adds Patrick Grossetete, Cisco's IOS product manager.

Poynter and Raines suggest that the business community hasn't seen a compelling reason to move forward with IPsec or IPv6, especially with virtual private network tunneling performing pretty much the same function as IPsec.

Besides, upgrading to IPv6 presents the classic chicken-and-egg problem, adds Poynter. Everyone would have to upgrade to IPv6 at the same time. Otherwise those that migrate first will lose access to parts of the Internet due to compatibility issues.

But sometime soon, there will be an unavoidable business driver to upgrade to IPv6: a need for more IP addresses, says Mark Himelstein, vice president of engineering at Sun Microsystems Inc.

IPv4 can support 4.3 billion addresses, but V6 can support an almost unlimited number. And with wireless Internet appliances sweeping in, the need for address space will soon explode. With the larger IP addresses in the V6 standard, Himelstein adds, "there'd be enough IP addresses for every molecule on the planet."

The need for deeper filtering and IP security will also explode, Himelstein says. Otherwise, any Internet-connected device, even Grandma's fridge, could someday hack the world. ■

Intrusion Detection

DEFINITION

Intrusion detection is the art and science of sensing when a system or network is being used inappropriately or without authorization. An intrusion-detection system (IDS) monitors system and network resources and activities and, using information gathered from these sources, notifies the authorities when it identifies a possible intrusion.

BY PETE LOSHIN

IF A FIREWALL is like having a security guard at your office door, checking the credentials of everyone coming and going, then an intrusion-detection system (IDS) is like having a network of sensors that tells you when someone has broken in, where they are and what they're doing.

Firewalls work only at the point of entry to the network, and they work only with packets as they pass in and out of the network. Once an attacker has breached the firewall, he can roam at will through the network. That's where intrusion detection is important.

There are a number of approaches that can be used for detecting intruders. Many experts advise using a combination of methods rather than relying on any single mechanism.

Host-Based Detection

Perhaps the most famous IDS is Tripwire, a program written in 1992 by Eugene Spafford and Gene Kim. Tripwire exemplifies the host-based approach: installed on a host, it checks to see what has changed on the system, verifying that key files haven't been modified.

The agent is initially installed against a pristine host installation and records important system file attributes, including hashes of the files. The agent software then periodically compares the current state of those files to the stored attributes and reports any suspicious changes.

Another host-based approach monitors all packets as they enter and exit the host, essentially taking a personal firewall approach. Receipt of a suspicious packet triggers an alarm. Other commercial host-based products include Cupertino, Calif.-based Symantec Corp.'s Intruder Alert and Isaquaah, Wash.-based CyberSafe Corp.'s Centrax.

Network-based intrusion-detection systems scrutinize all packets on a network segment, flagging those that look suspicious. A network IDS searches for attack signatures — indicators that the packets represent an intrusion. Signatures might be based on actual packet contents and are checked by comparing bits to known patterns of attacks. For example, the system might look for patterns that match attempts to modify system files.

Other network attacks are protocol-based. Attackers often seek weaknesses in a network by probing for active but poorly administered Web, file or other servers. These port attack signatures are identified by watching for attempts to connect to network ports associated with services that are often vulnerable.

An attack with a header signature uses malformed or illegal TCP/IP packet headers. For example, an attacker might try to send a packet that simultaneously requests to close and open a TCP connection; such a packet might cause a denial-of-service event for some systems.

Commercial network-based systems include Cisco Systems

Inc.'s Secure Intrusion Detection System (formerly known as Cisco NetRanger), Atlanta-based Internet Security Systems Inc.'s RealSecure and Symantec's NetProwler.

What You Know, What They Do

Detection systems can also be categorized as knowledge- or behavior-based. Most commercially available systems are knowledge-based, matching signatures of known attacks against changes in systems or streams of packets on a network. Such systems are reliable and generate few false positives, but they can detect

intruders using only attacks they already know about. They're often helpless against new attacks, so they must be continually updated with new knowledge about new attacks.

A behavior-based IDS instead looks at actions, attempting to identify attacks by monitoring system or network activity and flagging any activity that doesn't seem to fit in. Such activities may trigger an alarm — often a false alarm. Though false positives are common with a behavior-based IDS, so is the ability to detect a previously unreported attack.

Another intrusion-detection tool is the "honeypot," a completely separate system designed to offer an attractive nuisance to attackers. One manager of a prominent Web site often uses a honeypot to handle all inbound requests. Any attacks against the honeypot are made to seem successful, giving administrators time to mobilize, log and track the attacker without ever exposing production systems.

Intrusion detection requires considerable planning. As with

virus detection, host-based intrusion detection that monitors system and file changes must be installed on pristine systems. Otherwise, there's always the chance that the system has already been compromised prior to installation of the IDS.

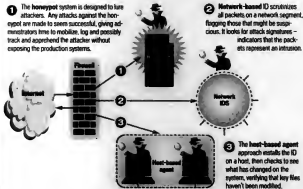
It's even more important to have a clear procedure in place for dealing with intrusions. It's not always best to simply pull the plug once you know that an intrusion is under way.

Depending on what systems or networks have been compromised and what you want to happen to the attackers, it's often preferable to keep the attackers in the system and contact a law enforcement agency to try to catch them. Such a decision shouldn't be made in haste: a set of intrusion response policies and procedures should be prepared well in advance. You want to keep intruders out, but you also want to discover and locate them when they succeed. ■

Loshin is a freelance writer in Arlington, Mass.

Intrusion-Detection Systems

IDS stands for intrusion detection, which is the art of detecting inappropriate, incorrect or anomalous activity. ID systems that operate on a host to detect malicious activity are called host-based ID systems. ID systems that operate on network data flows are called network-based ID systems. These two systems can be used in conjunction with each other.



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Start-up Picks Up Pace For Busy Web Sites

SpiderCache speeds load times for dynamically generated Web pages

BY DAVID EISSEX

SPIDERCACHE Inc. in Vancouver, British Columbia, calls Player-Racing.com the poster child for how its caching software can boost performance at even the most dynamic, multimedia-rich Web sites.

Run by VFX Digital Solutions Inc., a new-media development company in Richmond, British Columbia, the auto racing Web site is subject to peaks and valleys that can bring sharply heavier loads as fans log in to view up-to-the-minute results and videotapes. And the content of its Web pages changes constantly.

Speeding up those pages was a challenge. Dedicated content delivery networks from companies such as Akamai Technologies Inc. in Cambridge, Mass., wouldn't be much help in handling such content because they cache static pages that are the same for every user. VFX President Coniah Chuang chose SpiderCache because it can handle his database's dynamic content.

"The customers don't know about it," Chuang says. "They just know it's quick."

Web Page Dynamics

SpiderCache was hatched two years ago when product development manager and co-founder Michael Corcoran, then lead developer at educational site Brainium, asked himself, "Why does dynamic content need to be generated over and over again, when the same thing is being generated?" That realization led Corcoran to design SpiderCache and co-found the company with fellow Brainium technologist Greg Parker last June. They released their first product three months later.

SpiderCache, which is available for Windows and Unix Web servers, analyzes incoming Web page requests and

caches page elements that site administrators preselect.

"In the best-case scenario, SpiderCache will turn your dynamic Web site into a static Web site by caching all of your pages," says Corcoran, who claims that customers see as much as a fortyfold performance gain. The software also

lets Web administrators tweak performance with "parameterized caching" that lets them select pages for caching based on properties such as the user's location and browser type.

Another feature, called partial-page caching, provides more refined control. Corcoran says some sites can install the software in half an hour, with little or no technical support. The most complicated sites may take two days, he says.

Chuang raves about the



GREG PARKER (left) and Michael Corcoran say multimedia-rich sites could use up to a fortyfold performance gain using SpiderCache.

SpiderCache Inc.

Location: 1001 Dandridge St., Vancouver, British Columbia V6H 3S3
Telephone: (604) 252-2243
Web: www.spidercache.com

WebSite: Caching software that speeds the loading of dynamic Web page content

Why it's worth watching: Faster Web site performance can keep users longer and increase Web site traffic.

Company officers:

- Greg Parker, CEO, president and co-founder
- Michael Corcoran, product development manager and co-founder

Milestones:

- June 2000: Company founded
- September 2000: SpiderCache released

Employees: 10; growth to 90 employees projected for the year

company's careful, expert technical advice but expresses a desire for setup screens that make it easier to select Web content. (Corcoran says a new configuration wizard in SpiderCache 1.5 will help.)

However, Future Shop Ltd. in Burnaby, British Columbia, is running a SpiderCache beta when it failed to handle Microsoft Active Server Pages with "multiple levels of referencing," says Wayne Chow, operations manager at the electronics retailer. A SpiderCache fix would have required changing some of the site's original code, according to Chow.

Corcoran claims that changes are usually unnecessary and blames the problem on a Microsoft change that put Future Shop and SpiderCache developers out of sync.

Nonetheless, "we're looking at other solutions," says Chow. SpiderCache remains a tiny operation, with about 10 employees. Parker, now CEO and president, says he hopes a second round of financing that's under way will let him add 80 people by year's end. The company's customer list remains short, at roughly a dozen small, content-oriented sites, but Parker reports even broader interest in SpiderCache. "We are getting some inquiries into intranets as well," he says.

An upgrade, SpiderCache 1.5, arrived in mid-February with image compression and the ability to monitor content changes and changes to a site. Parker says. Three undisclosed products are under development. Parker hints that they will bring dynamic caching to other points along the Web performance bottleneck.

SpiderCache's size could be its undoing, says Peter Firstbrook, a research analyst at Stamford, Conn.-based Meta Group Inc.

"They have got interesting technology, but they've got to partner with someone to get it out there," he says. Educating customers on the value of caching is a hard sell, though Parker says high-profile, complementary vendors such as Akamai are helping to raise caching's visibility. ■

Eissex is a freelance writer in Andover, N.H. Contact him at david_eissex@comcast.com.

the buzz

STATE OF THE MARKET

Content Delivery With a Twist

SpiderCache's market includes content delivery networks (CDNs) like that of Akamai Technologies, but such firms specialize primarily in static pages and streaming video. Other vendors, such as Cacheflow Inc. in Sunnyvale, Calif., put caching technology inside dedicated network hardware.

Few Web sites are using dynamic Web page caching today, says Meta Group analyst Peter Firstbrook, but "the potential in it is huge because it's the Web universe—anybody that has a scalability or performance problem on a dynamic Web site."

Michael Hoch, an analyst at Aberdeen Group Inc. in Boston, says SpiderCache's toughest challenge may come from Oracle Corp., whose OracleCD infrastructure suite has a dynamic-caching component.

According to vendors and analysts,

only three companies offer dynamic caching that, like SpiderCache, works with more than one company's database:

Chutney Technologies Inc.

Atlanta

www.chutneytech.com

Chutney's Preload is unique in caching down to the level of Java or application server components. Unlike SpiderCache, which resides on each application server, Preload is on a separate server, so a single copy handles multiple Web servers.

Persistence Software Inc.

San Mateo, Calif.

www.persistence.com

Available in hardware and software versions, Dynamics "tunes away" from XCache, SpiderCache and Preload, claims DSI Technology Officer Jay Berth.

It can sail behind firewalls, in front of servers or out on the network, he says. However, its price of \$25,000 per server CPU is nearly five times that of SpiderCache.

XCache Technologies

Bellingham, Wash.

www.xccache.com

President and CEO Wayne Barry acknowledges that XCache and SpiderCache are "very similar" but claims that XCache 2.0, expected in June, will differentiate itself with new CDN support and compression features.

—David Essex

COMPUTERWORLD
emerging companies

Born money: \$1.5 million from British Inc.; second-round financing under way

Products/pricing: Pricing for SpiderCache 1.5 starts at \$2,999 per CPU for Windows NT and 2000 and \$5,299 for Unix. Volume discounts are available.

Customers: ConsumerReview Inc., OnCrawl.com, GoldWave Productions Inc., Investment.com, NewYork.com Internet Holdings Inc. and VFX Digital Solutions.

Partners: The signing of partners is "in process," the company says.

Red flags for IT:

- "It's a small player in a crowded niche."
- "It must find more funding and partners in order to grow."
- "Check your Web site database before buying SpiderCache. Oracle, for example, has dynamic caching features."


Profitability date: Expected within one year.

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Software Linguist

To appreciate the role of a senior software architect, it helps to think in terms of language and expression. By Sharon Watson



LOU COGLIANESE says his interest in languages has helped him in his role as chief software architect at Capital One. "I appreciate the value of being able to express things in different ways."

Summary

THEME: Job Watch

TOPIC: Senior software architect

KEY POINTS: Comprehensive knowledge of software architectural models, programming languages and systems are still prerequisites. However, what makes a senior architect distinct and more desirable is a complete ability to be able to create software architectures that go beyond technical elegance to help a company compete more effectively.

strength in communicating different types of ideas.

That's not so surprising: although he studied math as an undergraduate and later earned a master's degree in chemical engineering, Coglianese majored in French language and literature. "I've always been a language person," he explains. "How I express myself is an important part of who I am."

Coglianese's combination of technical and linguistic skills has been invaluable in a variety of professional situations. These include ordering dinner in French in a restaurant in Italy for English-speaking colleagues and translating Capital One's business objectives into systems requirements. Those are the multilingual skills that more companies are looking for in their senior software architects.

Software Grammar

As chief software architect, Coglianese's work is akin to that of a linguist codifying the grammar for a newly discovered language. At Capital One, the language is a business code, and the grammar is the architectural model.

"An architecture starts with needs and a vision: What do we hope to achieve; what value do we need the system to bring us?" Coglianese says. Then it's a matter of selecting the right technologies. "It's not about putting the latest and greatest together but of looking at the business drivers and how they map to the components of the architecture," he says.

In addition to meeting immediate end-user needs, software architecture must also account for the way in which future changes and additions will be incorporated into its design and the way that the system will be produced, maintained and upgraded.

Creating such architectures requires deep technical knowledge. "You need a detailed understanding of how things work under the covers," says Coglianese. For example, to know how application servers will schedule work, a senior architect must understand schedul-

ing algorithms, as well as software like Java 3 Enterprise Edition (J2EE), languages like Java and XML, and system components such as databases, networks and security.

Coglianese says his exposure to a wide range of complex systems during his 26-year career has been extremely valuable in acquiring such knowledge. Yet, he points out, even with his experience, he can't know everything about every system.

That's why he works with 14 other software architects, each of whom has complementary strengths. One may know database structures particularly well, while another may be strong on networking and a third may know security.

Coglianese's role is coordinating the skills of this group of architects as they collaborate with other players on a project, which may include professionals from Capital One's Internet group, operations department, call center group, and human resources and marketing departments.

A Wide Vocabulary

Current needs dictate that Coglianese and his team of architects be very close to the business users for whom they design systems. "I don't need to be a financial wizard, but I need to know the driving forces," he says.

With this knowledge, Coglianese and his architects generate their own ideas about systems that could help Capital One. "I like to see things get built, get into production, get delivered," he says.

Coglianese says that in the future, he expects to deliver systems providing personalized data to Capital One's 3 million customers. Component software like J2EE and languages like XML will offer a rich design base, he says.

"We'll be spending our time on the business value of a system, not on building infrastructures we've built a million times before," says Coglianese. ■

Watson is a freelance writer in Chicago.

Just the Facts

Name and job title: Lou Coglianese, chief architect, enterprise architecture

Company and location: Capital One, Falls Church, Va.

How he got the job: Coglianese worked at IBM for 20 years; he then did software architecture research and stints with consulting firms before Capital One landed him with its information-based business strategies. "It's the central nervous system here," he says. "We use IT to rocket the business forward."

Skills required: Competence with architecture styles, patterns and their implications; an understanding of performance-based estimates and capacity planning; knowledge of the benefits of new technologies; a good working knowledge of many programming languages, service databases, networks and system operations. "You must understand how each aspect will work in the context of the entire system," Coglianese says.

Training needed: Coglianese says his training in math and chemical engineering has been useful, but he also credits exposure to a range of systems, from "classic IT operations" to sophisticated systems for aircraft operation, radar processing and marine automation. As he identifies skills he may need in emerging technologies, Coglianese expects to gain them via Capital One's IT University.

Job and salary potential: Coglianese declined to discuss salary specifics. However, he notes that Capital One offers many performance-based incentives on top of salary and benefits. "You are in a position to make an impact, to show a benefit to the business, so you can take advantage of the perks," Coglianese says. Recruiters estimate salaries for senior software architects range from \$90,000 to \$150,000.

Advice: Coglianese recommends that aspiring architects gain as many skills and as much knowledge as possible. "You have to be able to work at the top; you have to be able to work at the bottom," he says. Further, he urges architects to learn to express their architectures in novel designs so they're easy to analyze and evaluate.

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careers

IT Careers in Texas

Enron Net Works
Houston, TX

The energy and utilities giant, Enron Corp. formed a separate commercial venture — Enron Net Works — just over a year ago. Its mission: commercialize and leverage the company's transaction-based and e-business platforms within the energy and commodity industries. "We provide services as far as operational and application service provision to companies," explains Philippe Bibi, president and CEO of Enron Net Works and chief technology officer for Enron Corp.

In less than five years, Enron has become a worldwide player in the energy market, offering utility power and exchange. The transaction support role for Enron Net Works is also expanding to the company's new businesses — forest products, freight and steel. "We're building a number of new transaction-based systems that leverage off some of the building blocks we developed," says Bibi. "The essence of the commodities market is a bit different, so we are creating new solutions from the logistics and entry management perspectives."

"Quite frankly, it's nice for an IT professional to come in and look at green field projects in development versus patching code," Bibi adds. In 2000, this challenge attracted more than 550 new employees. Among the successful hiring programs is Enron Net Work's College Graduate Recruiting Program. New college graduates enter a two-year program in which they rotate to new opportunities every year, crossing Enron companies and getting a chance to experience the varied technologies used.

Bibi says successful candidates tend to have degrees in electrical engineering or computer science. "We also are looking for people who have a good understanding of how this business works," he says. "Our development model places traders, accountants, operational employees and the IT staff on teams, so interactive skills and the ability to learn the business quickly are important. Our top performers tend to be fully conversant in the business, not just in technology."

"In this market, we are by far leading the pack in our IT reputation," Bibi notes. "It's a network of sophisticated infrastructure and solutions. If you want to learn and grow, you will be in an environment that is a leader. From a business perspective, we are on par with Wall Street giants in terms of our trading capability."

USAA
San Antonio, TX

A little over eight decades ago, USAA was formed by a group of military officers to provide insurance that targets the unique needs of military officers. Today, the San Antonio-based corporation has grown to offer full-service banking, credit, investment and financial planning services to go along with its highly reputed insurance.

Of USAA's 4.6 million members, fully 1.2 million of them clicked in to the company's new e-commerce capabilities in the past year. In addition to the well-known use of database management to better serve customers, USAA's expansion in technology includes customer-service centers using call-center technology and leading-edge work in voice-over-web. "IT is the backbone of the business," says Bob Morrison, director of strategic staffing for the IT organization. "We create and maintain custom programs for investment management, the federal savings bank and property casualty. Technology runs along the breadth of these very strong businesses."

USAA is leveraging its e-commerce capability as it benefits members and the businesses. "There's a combination of customization and implementation going on," says Morrison, who notes that the USAA e-commerce group has won awards for its site. In addition to concentrating on the back-end of the systems, USAA's IT experts also continuously improve the interface with members by testing the systems in a lab on site at the San Antonio campus.

IT professionals at USAA are involved in development, networking, architecture design, consulting, security analysis and development, database management and system design. The company uses client/server and mainframe technology. "We believe this breadth of technology makes us an attractive technology challenge," Morrison adds. While he is recruiting individuals with technological expertise in these areas, he says that the "fit" is critical at USAA. "We want people who have experience and who have leadership capability, the things that indicate your character and well roundedness as an individual," he adds.

"We are hiring individuals for the long-term, not just for a job," Morrison says. "You'll grow through the business opportunities but also through the programs we offer to you." *Training Magazine* rates USAA among its "Top 50 Companies in Training and Development."

In addition to the traditional benefits, USAA's San Antonio campus is a self-contained service center for employees, offering a medical clinic, health and recreation facilities, dry cleaners and florist, as well as a dinner take-out service. "We don't just talk about being employee-centric, we act on it. Our IT organization enjoys a four-day work week. We want you to have a life/work balance. We believe that if we invest in our employees, we are better able to serve our members." This philosophy has placed USAA on the *Fortune* magazine list of "100 Best Companies to Work for in America" every year since the listing began.

IT CAREERS

For more job opportunities with firms in Texas, turn to the pages of *Fluor*.

- If you'd like to take part in an upcoming *Fluor* search, contact Janis Crowley, 458.312.0447 or janis_crowley@fluor.com.
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IT Careers in Financial Services

The methods people can use to manage their business and personal finances have literally exploded in the past 24 months due to the use of the Internet and other technologies. The challenge for the coming 12 months is just as great—for financial services companies to position themselves technologically to ride the crest of business possibilities.

The Principal Financial Group Retirement and Benefit Services Des Moines, IA

Every year, more than 100 million Americans use the services of The Principal Financial Group to help them manage their retirement and benefit plans. These plans are complex, and they are constantly changing. The Principal Financial Group's Retirement and Benefit Services division is the nation's largest provider of retirement and benefit services. We have more than 100 years of experience in helping people manage their retirement and benefit plans.

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At The Principal, we're looking for people who are passionate about helping others achieve their financial goals. We're looking for people who are constantly upgrading and developing new products and services to meet the needs of our clients.

More than five million visitors visit the Principal.com site each day, including those who are looking for information about retirement and benefit services. As part of our business, we're constantly upgrading and developing new products and services to meet the needs of our clients. We're looking for people who are passionate about helping others achieve their financial goals. We're looking for people who are constantly upgrading and developing new products and services to meet the needs of our clients.

To link with customer companies, The Principal uses Direct Connect—an employee log in to contribute their portion of funds to members' accounts, manage the overall plan and add members.

"We have ambitious goals to create this organization, which has locations spanning the globe," Nyberg adds. "From a client perspective, it's important that we continuously upgrade and develop applications that reach our clients and improve their relationship."

The company is in need of people to fill positions from mainframe support and development to web development, infrastructure design and network experts. "We hire technical people who want to work on systems and infrastructure, application development within our business units," says Louise Orell, human resources generalist. "This is an IBM environment. We also consider experience that demonstrates your leadership. I want applicants who can show me they have accomplished results, who have business skills and knowledge."

The Principal plans to hire 100 additional people for the IT

department. "It's not just coding and testing code," says Nyberg. "You'll see things together that you won't be able to see as separate elements. At The Principal, we view technology as a product. And technology IT people are empowered owners. You will have tremendous responsibility to do our business and will be given the opportunity to grow. And, you'll be joining a team that has been very successful and is doing well today."

VISA USA San Mateo, CA

"For VISA, the challenge is joining all the techniques and technologies of all the possibilities, and then deciding what the most viable alternative is from a business sense," says Karen Ughural, vice president of new systems initiatives for VISA.

The company faces IT challenges in research and development, operations, development for mainframe computing, new technology computing, web and Internet, as well as Internet development. "We operate from major worldwide IT centers—our team in the United States, one in Japan and one in England," Ughural says. Currently, the financial services company is building a TCP/IP network that will be fault-tolerant and built to handle the growing transaction volume VISA handles every day—about 6,000 transactions per second right now. The company is also renewing its core systems to operate on open architectures.

The company recently began testing chip cards in the United States. "Putting it on the base of the payment infrastructure for chip cards and the network structure that is required provides a tremendous technological challenge," Ughural says. "We're now exploring how to use the chip to add more capabilities to that card. It's an entirely new area."

"The purpose of my specific group is to look at the convergence of new technologies along with what is going on in our business world, then recommend new initiatives and ideas based on thorough analysis and architecture reference implementation," she says.

"There is tremendous opportunity to work with fascinating research and technologies, pushing the limits of what devices can do," says Ughural. "There's also the opportunity for advancement and to build a solid career. VISA is definitely a place to have your intellect and creativity valued and put to use."

In addition to IT positions, Visa has openings in finance, brand marketing, sales, legal and eVisa.



For more job opportunities with financial services firms, turn to the pages of *Fluoride*.

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SENIOR SOFTWARE ENGINEER or design developer, implement, test, maintain and support applications software for the telecommunications industry in a challenging environment. Must have 5+ years of experience in C++, C#, Perl, COBOL, TSP, REXX, Visual Basic, VBScript, JSP, J2EE, WebLogic, and WebSphere. Must have 5+ years of experience in Java/JSP and 3+ years in C++/C#. Must be able to work in a team environment. Salary: \$60,000 - \$70,000 per year. 40 hrs per week. Send resume to: **Software Engineer**, 10000 E. 1st Avenue, Suite 100, Denver, CO 80231. Fax: 303-733-1111. EOE/DFW/AAE.

SOFTWARE QUALITY ANALYST to analyze, design, develop, test, debug, implement and maintain software for manufacturing applications related to inventory control, production planning, capacity planning, equipment planning and scheduling. Must have 5+ years of experience in Java/JSP and 3+ years in C++/C#. Must be able to work in a team environment. Salary: \$60,000 - \$70,000 per year. 40 hrs per week. Send resume to: **Software Engineer**, 10000 E. 1st Avenue, Suite 100, Denver, CO 80231. Fax: 303-733-1111. EOE/DFW/AAE.

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PRINCIPAL SOFTWARE ENGINEER responsible for the design, development, testing, and support of applications software for the telecommunications industry in a challenging environment. Must have 5+ years of experience in C++, C#, Perl, COBOL, TSP, REXX, Visual Basic, VBScript, JSP, J2EE, WebLogic, and WebSphere. Must have 5+ years of experience in Java/JSP and 3+ years in C++/C#. Must be able to work in a team environment. Salary: \$60,000 - \$70,000 per year. 40 hrs per week. Send resume to: **Software Engineer**, 10000 E. 1st Avenue, Suite 100, Denver, CO 80231. Fax: 303-733-1111. EOE/DFW/AAE.

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Chief Architect (Senior Class Network) - A Boston-area company is seeking a Chief Architect (Senior Class Network) to lead a team of network engineers in the design and implementation of a new network architecture. The successful candidate will have 10+ years of experience in network architecture and design, with a strong background in TCP/IP, LAN/WAN, and security. The position is located in Boston, MA. Salary: \$100,000 - \$120,000 per year. 40 hrs per week. Send resume to: **Chief Architect**, 10000 E. 1st Avenue, Suite 100, Denver, CO 80231. Fax: 303-733-1111. EOE/DFW/AAE.

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SOFTWARE ENGINEER Provide functional and empirical analysis relating to the design, development, implementation, testing, and documentation of software for the organization's products and manufacturing system. The engineer will be responsible for the development of test strategies, devices, and systems.

BS in Computer Engineering or technical equivalent is required, as well as 3+ years of experience with C++.

CLINICAL/COMPUTER ENGINEER Provide technical and clinical phone support to customers regarding the proper use of the equipment and resolve technical software or hardware problems for highly sophisticated diagnostic equipment. Respond to inquiries from hospital customers using the equipment on a daily basis and to technical inquiries from Field Service Engineers who encounter technical issues in installing, testing and servicing this equipment.

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Automated Screening: Guaranteed Success or Formula for Failure? DR. WENDALL WILLIAMS, SCIENTIFIC SELECTION

Are you really measuring what you want? What does it take to do it right? Dr. Wendall Williams, Managing Director of Scientific Selection is a nationally recognized expert in testing and assessment for selection. He is a frequent contributor to online and print recruitment newsletters and professional publications.

Measuring Your Success: What Your Management Really Wants to Know KEVIN WHEELER, GLOBAL LEARNING RESOURCES, INC.

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Kevin Wheeler, the President and Founder of Global Learning Resources, Inc., is a globally-known speaker, author, columnist, and consultant in human capital acquisition and development.

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Ken Gaffey is a staffing consultant with over 15 years of Human Resources experience in the New England high technology and financial services marketplace. Ken is an active member of HRCA, NEHRA, SHRM, HRC, the Society of Professional Consultants, and the Human Resources Council. Ken contributes articles and book reviews to the Electronic Recruiting Exchange, Monitor, HR Today, and several other professional organization newsletters and periodicals.

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Diversity - What You Need to Do to Tap "All" the Top Talent PRESTON EDWARDS, IMDIVERSITY.COM

Top employers benchmark how diversity has become a core value to attracting and retaining top talent and keeping a competitive edge. Moderator, Preston Edwards, Chairman and CEO, IMDiversity.com, and Black Collegian Magazine, is nationally known for his 30 year commitment to diversity education. He has been honored by numerous organizations including the 1999 Pewkes Award from the Employment Management Association.

What You Really Need to Know About Resume Management Systems or, How to Tell "Real Ware" from "Vaporware" MARK MEHLER, MMC GROUP

The world's most competitive corporations discuss the pros and cons of choosing and using emerging technology tools and systems. Moderator, Mark Mehler, President, MMC Group, Mark is an international consultant on high-volume staffing processes, a sought after speaker at national recruiting conferences and co-author of CareerWoods.

Town Hall Forum: Pundits, Puns and Pulled Punches GERRY CRISPIN, CAREERROADS 2000; JOHN SULLIVAN, AGILENT TECHNOLOGIES; KEVIN WHEELER, GLOBAL LEARNING RESOURCES; PETER WEDDLE, WEDDLE'S

Four Internet recruiting pundits square off in a "no-holds" barred debate on the future of employment. Who are the winners and losers in the employment space?

Internet Recruiting Strategies - TOOLS Overview: BRET HOLLANDER, NETRECRUITER

Advanced sourcing strategies & techniques demonstrated from an actual day of recruiting by one of the best firms in the U.S. on sourcing any type of candidate. Winner actual software, as well as unique scripts and techniques to successfully develop relationships with potential candidates. TOOLS is intended for recruiters or sourcing specialists who have already mastered basic sourcing techniques through the use of fee-based sites, formulae searching on engines such as AltaVista or Google, and have taken an evening all-day class on this topic by any of the top Internet recruiting training firms.

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- Security Tools
- Learning Tools

Technology 2001 SUSAN HODGES, SEMCO

There is always something new going on in IT, but the new millennium seems even busier than usual. The Internet is affecting everything that's being done and new products and skills appear daily. This session will look at the new technology in such critical areas - platforms, development, data, communications and applications.

Presented by



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SUNDAY, MAY 20

12:00 - 5:00pm

GOLF TOURNAMENT FOR
PRE-REGISTERED ATTENDEES
7:00 - 8:30pm
PRE-CONFERENCE EVENING
NETWORKING RECEPTION

MONDAY, MAY 21

7:00am - 8:00am

BUFFET BREAKFAST
8:00am



WELCOME &
OPENING
REMARKS

Alan Gubard, CEO,
Computerworld
Maryjane Johnson,
Editor-in-Chief,
Computerworld

8:15am

OPENING KEYNOTE:
GOING DIGITAL THE
OLD-FASHIONED WAY:
CMT'S LEVEL-LEADED
APPROACH TO E-BUSINESS
Ralph Siegmund, CEO,
General Motors

8:30am

PANEL 1:
IT'S MISSION IMPOSSIBLE:
GLOBALIZATION AND E-BUSINESS
Panel Moderator: Steven Kachubski,
CIO, BNC Chemicals.com

Ready or not, the Web is making the globalization of business a reality. But pursuing a global strategy means more for IT than creating a worldwide network infrastructure, setting up foreign distribution or hiring IT talent abroad. So how do we in IT land go about getting a grip on strategy to support the company's global business objectives? Our panel will share its collective international experience to send you off with a host of good ideas along with an action-item list.

10:00am

BREAK

10:15am

OLD RULES, NEW GAME:
BUILDING PRESIDENTIAL'S
GLOBAL E-STRATEGY
Joan DeC,
VP International Investments,
Prudential Insurance

11:00am

PANEL 2:
THE NEXT WAVE OF
E-COMMERCE: CONNECTING
YOUR CUSTOMER CHANNELS
Panel moderator: Kevin Pigarty,
Business & Technology Editor,
Computerworld

The customer economy has arrived with a vengeance, trailing massive numbers of Customer Relationship Management (CRM) systems in its wake. But integrating disparate CRM applications and re-architecting workflow to get that mythical 180-degree view of the customer remains a major hurdle for IT. Are you trying all of your customer channels together — in real-time — to leverage existing investments in host-office and legacy applications? This panel will bring together 30+ years' industry veteran as a topic that ultimately affects every company's bottom line.

12:00pm

INTERACTIVE LUNCHEON
REGISTERING & RECAPITULATING
TOP TALENT

1:30pm

AFTERNOON KEYNOTE:
SURVIVING THE
REVOLUTION AND
THRIVING IN THE
CUSTOMER ECONOMY
Patrick Seybold, CEO,
Patrick Seybold Group
and Author of
"Customerize.com" and
"The Customer Revolution"

2:15pm

PANEL 3:
WIRELESS WARRIORS AND THE
CHALLENGE OF M-COMMERCE
Panel moderator: Bob Brewster,
Senior Editor, Wireless Technology,
Computerworld

New technology held at such premium — or pace at many points — as wireless networks and mobile computing. What are the best practices in deploying mobile commerce applications that involve security concerns and location-service controversies? Which applications make the most sense for wireless? Label these do you choose an architecture that scales well for your own hand? How valid is the Wireless Applications Protocol (WAP) standard for carrying bandwidth devices and wireless networks? Our panelists will examine these core questions through the lens of their own experience, coming up with some practical recommendations for the next wave of wireless warriors.

3:00pm

BREAK

3:15pm

CLOSING KEYNOTE:
THE ABILITY TO RISK
INNOVATIONS
Chad Rubin, President, Outlook

3:35pm

CLOSING REMARKS

4:00pm - 8:30pm

SPONSOR BREAKOUT SESSIONS

8:30pm - 8:30pm

COCKTAIL/NETWORKING

RECEPTION

EXPO & BUFFET DINNER

TUESDAY, MAY 22

7:00am - 8:00am

BUFFET BREAKFAST

8:00am

OPENING REMARKS

Alan Gubard & Maryjane Johnson

8:15am

OPENING KEYNOTE:
IT LEADERSHIP IN A
CHANGING ECONOMY
Bill Drog Beach, CEO, Intel

9:00am

PANEL 4:
THE HEAVY HAND OF UNCLE
SAM IN ONLINE SECURITY AND
PRIVACY PROTECTION
Panel Moderator: Adam Peller,
Research Director, SANS Institute

Whether technology reaches its climax these days, the U.S. government seems to be down with new regulations or proposed legislation. The high-tech sector remains split about how to approach online privacy protection in the U.S., while the European Union has already adopted tough data protection laws that multinational companies must follow. Our expert panel will talk about strategies for handling a complex of Uncle Sam in this scenario, potentially replacing regulatory environment.

10:00am

BREAK

10:15am

PRIVACY - IT'S NOT JUST
A COMPLIANCE ISSUE
Bobbie Schwartz,
VP of Services, Guardian
(Former Chief Security Officer,
Nationsource)

11:00am

TOWN HALL MEETING:
"ASK THE CAREER EXPERTS"
Maryjane Johnson

12:00pm

EXPO & BUFFET LUNCHEON

1:30pm

AFTERNOON
KEYNOTE: THE
BEST OF BOTH
WORLDS: THE
SYNERGY BETWEEN
OPERATIONS
AND IT
Laura Olin and
Morgan Connolly,
Co-CEOs, Capital
One Financial

2:15pm

PANEL 5:
THE NEW BOE TRACKING
TECHNOLOGY PAYBACK IN A
TOUGH ECONOMY
Panel Moderator: Julia King,
Executive Editor, Computerworld

Here is the time to maximize your IT investments, generate some new ideas and find new revenue streams. How is your company using the Internet to streamline processes within the organization and deal more effectively with your supply chain? Are you creating online relationships with your customers and competitors alike? Where can you use IT to create new products and services? Getting focused on the real business opportunities and the ROI behind technology expenditures is the outcome of this panel.

2:15pm

BREAK

2:35pm

CLOSING KEYNOTE:
ESSENTIAL INGREDIENTS
FOR E2B MARKETPLACE
LUCIDITY
Harvey Siegel,
President/CEO,
GE Global eExchange Services

3:05pm

CLOSING REMARKS

Alan Gubard & Maryjane Johnson

4:00 - 8:30pm

SPONSORED BREAKOUT SESSIONS

7:00pm

COCKTAIL RECEPTION,

ENTERTAINMENT AND GALA

AWARDS DINNER

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Westin Mission Hills Resort

FRANK HAYES/FRANKLY SPEAKING

By Nerds Betrayed

BETRAYED — THAT'S THE WORD to describe the IT people at Xerox. When some users violated company policy and installed Microsoft Windows XP beta software on their PCs, the result was what Xerox called an "isolated network outage." And then it happened again. And again. All in less than a week, and all at the same Xerox site in El Segundo, Calif. It got so bad that Xerox warned all 50,000 of its U.S. employees not to install XP betas without permission or they'd face disciplinary action. (See story, page 6.)

What's worse, it wasn't ordinary users that brought down the network. It was nerds.

Somehow, we expect ordinary users to foul things up. They do stupid things, or unexpected things, or things that our systems were never designed for. They don't know the limits of the technology, or they don't accept those limits. They expect everything to work no matter how badly they abuse or misuse it.

But the Xerox engineers who smuggled in XP betas weren't naive users. They were our guys. OK, not IT-shop people, but IT-savvy engineers who develop products that use microprocessors and connect to networks.

If anyone should have known better, it's these folks. And they're the ones who brought things down.

Then again, maybe that's what we should expect. After all, regular users aren't going to futz with this stuff. Shirley in accounting just wants a browser plug-in to open a digital birthday card from her grandson. Phil in sales may be a little more dangerous — he wants to connect his Palm handheld to his PC — but it's still nothing earthshaking. A new operating system? That's out of their league.

But our fellow nerds? That's another story. Engineers and other power users love playing with technology as much as we do. Betas, freeware, shareware, promoware — if it's neat stuff, they've gotta have it. And they won't wait for us hidebound fuddy-duddies in IT to make sure it's safe.

These people are our most tech-savvy users. They should be the IT shop's closest allies. Instead, that just for the latest and greatest means that no matter what the rules say, they'll keep sneaking in unauthorized software. And when

something goes wrong, we'll be betrayed again.

So, what to do? We've got a pretty good idea who the likely rule-breakers are. But just enforcing the rules won't work. We can't catch all cheaters; we'll spot them only when something major goes wrong. And the time and effort it takes to try will never be worth the trouble.

Besides, as soon as we're not looking, they'll be back at it again. They'll just be more careful to cover their tracks next time.

But there's another way. If you can't beat 'em, co-opt 'em.

Are there unauthorized Windows XP beta testers on your networks? Make them authorized beta testers. Create a program. Sign 'em up. That way, they're not breaking the rules.

More important, you can keep a close watch on them. And when something goes wrong, they'll cooperate in trying to clear it up instead of trying to hide it.

And, yeah, you'll get some very useful real-world feedback on what XP — or any other beta product — is really like for users. You won't get that perspective from your IT-shop testers.

But mainly, you'll be able to keep the surprises to a minimum. And herding these users through early beta tests may be a challenge, but it's better than having to wonder which one will crash the network next.

So keep those rule-breaking nerds close, and the closer the better. Either that, or be ready to be betrayed — again and again and again. ■

Hayes, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

They'll keep sneaking in unauthorized software — no matter what.



SHARK TANK

PILOT FISH IS TESTING the new phone switch at the main office the old-fashioned way: one number at a time. But he's getting tired of the same conversation over and over. "Fish, hi, this is Fred. I'm testing your new phone number." User "Did it work?"

UNCLEAR ON THE CONCEPT University IT staff is implementing PeopleSoft financials, and there are delays. Among other problems, the staff doesn't have the right version of a compiler to build the code for its Unix servers. At a big status meeting, one manager has a suggestion: "We could test-track the project by using the compiler we do have: the NT version."

RECORDS CLERK calls help desk and she accidentally deletes a file. "We can try to restore it from last night's backup tape," pilot fish offers. "What if I only created it today?" she asks. "In that case, we can't help you," says tech. Photo. Then she asks, "Would it be on tomorrow night's backup tape?"

FROM THE INSTRUCTIONS for one company's two-page expense report form: "This form was developed to encourage all users to become paperless."

SUPPORT PILOT FISH, trying to troubleshoot a nonworking printer, asks for user if she's running it under Windows. "No, my desk is next to the door," she replies. "But that's a good point. The man sitting in the cubicle next to me is under a window, and his printer is working fine."

NEW ENGINEER at manufacturing company assures network admin pilot fish that he's worked with desktop computers before. "10 years ago, in fact. Fish doesn't doubt it when he gets an e-mail message from the new hire: 'Can you supply me 15 floppies because I need to back up files on my PC?'"

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The 5th Wave



"We can monitor our entire operation from one central location. We know what the 'Nice Lips' people are doing; we know what the 'Whispering Confession' people are doing; we know what the 'Big in the Ice Cold' people are doing. But we don't know what the 'Plastic Kiss' people are doing. We don't want to know what the 'Plastic Kiss' people are doing."

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